CutLogic 1D

User's Manual

Top class optimization software

Product of

TMachines evolutionary software

www.tmachines.com

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Welcome to CutLogic 1D!

Thank you for your interest in CutLogic 1D - length cutting optimization software. CutLogic 1D is a solution for finding optimal length cutting layouts with minimal waste, saving your material, time and money.

Since 2002 TMachines has provided top class software solutions in the area of cutting optimization for their customers. CutLogic 1D brings you the best of our know-how as well as many improvements inspired by our customers. We know every customer has specific needs, therefore we have prepared well tuned editions of CutLogic 1D:

- Standard Edition (SE)

  Ideal solution designed for individuals or as a starter package for small and medium business (SMB) segments. This edition provides full Inventory Management and state-of-the-art optimization engine based on AI programming technique, the same one for all editions. No customization and no editable reports are available for this edition.

- Professional Edition (PE)

  Right solution designed for needs of SMB. It provides full Inventory Management and state-of-the-art optimization engine based on AI programming technique, the same one for all editions. This edition supports more import/export formats and contains embedded report designer for customization of reports. On demand customization of software is possible only for reports and import/export functionality.

- Enterprise edition (EE)

  Solution designed for enterprise customers. It provides full Inventory Management and state-of-the-art optimization engine based on AI programming technique, the same one for all editions. All input/output formats are supported in this edition. Also full on demand customizations and extra Enterprise+ add-ons are available for this edition.

See chapter Edition comparison for details.

Today, our solutions help companies in more than 65 countries worldwide on daily basis to maximize their cost savings.
We believe you will be satisfied with our program and we wish you a lot of savings with CutLogic 1D.

Authors

Contact and Support

Feel free to contact us via e-mail in any matter related to our products and services. We will make sure your inquiries will be processed and answered as soon as possible.

Non technical questions

If you have any general questions or any non technical questions regarding pricing, ordering and licensing of CutLogic 1D, please contact us at:

E-mail: sales@tmachines.com

Technical questions

If you have any technical questions regarding CutLogic 1D's functionality, features, working with program or modifications, please contact us at:

E-mail: support@tmachines.com

See also our regularly updated web for news and updates at: www.tmachines.com

Street and mailing address:

TMachines, s.r.o.
Namestie SNP 17
974 01 Banska Bystrica
Slovakia

Introduction

What is CutLogic 1D?

- CutLogic 1D is a top class length cutting optimization software, it is the best way how to save your material, work and time when you need to cut any linear material such as pipes, rods, tubes, wires, profiles, bars, cables, etc.
- CutLogic 1D automatically finds optimal cutting layouts, using the most advanced optimization techniques. Its optimization engine takes advantage of Genetic Algorithms and Fuzzy Logic which represent fundamental techniques of modern Artificial Intelligence and bring better results than any other software.
- CutLogic 1D is very flexible and complex solution providing extensive features such as full material and remnant management, enhanced reporting functionality or multi format import and export of data for seamless integration with your existing working system and much more.
- CutLogic 1D with OptiRefine module is the only solution on the market providing an intelligent optimization refinement and re-optimization based on different priorities than just costs. See chapter Refining Optimization further in this manual for details.

Genetic Algorithms and Fuzzy Logic

Genetic Algorithms

Genetic algorithm is an algorithm that mimics evolution and competition between individuals in natural selection. Tasks are encoded to genes of individuals and evolution produces better individuals with better solving. Neither programmer nor genetic algorithm has to know how to solve a given problem; solution is just bred. Genetic algorithms and genetic programming belong to evolutionary computation and artificial intelligence.

Fuzzy Logic

Fuzzy Logic is a truth-functional system that mimics natural thinking in a sense of dealing with the degree of truth rather than just with True and False. In Boolean logic an event can be only False (0) or True (1); in fuzzy logic an event can be sort of true - a number between 0 and 1.

What's New in CutLogic 1D Version 4.6?

What's New in Version 4.6?

Reports

- Capability to create charts

General

- Configurable sorting of layouts and layout parts
- Several smaller improvements and fixes

Version 4.5

Import/Export

- Export to RazorGage system

General

- Several smaller improvements and fixes

Version 4.4

General

- Closed plans can be deleted now
- Material lookup table sorted by description
- Several smaller improvements and fixes

Version 4.3

Optimization & cut options

- Minimization of layout (pattern) count
- Minimum repeat of (each) layout

Import/Export

- Added import and export of whole plan from/to single file

General

- Several smaller improvements and fixes

Version 4.2

Import/Export

- Added support of feet & inches in imports

General

- Several smaller improvements and fixes

Version 4.1

Import

- Import of multi-material data with automated creation of plans
- Improved import from CSV and TXT, sorting capabilities for imported data

Reports

- Batch reports

Connectivity

- Improved performance on WAN

General

- Creating multi-material plans from Assemblies
- Several smaller improvements and fixes

Version 4.0

The following describes changes against version 3.3

Technology

- MS Vista OS supported
- Firebird RDBMS used - more secure and reliable solution based on true SQL database for data protection like security, backup, crash recovery, etc.

GUI

- Graphical redesign and optimization of program for more user friendly look and feel
- Enhanced data grids for better navigation and data manipulation – new sorting and multi sorting features
- Enhanced filtering capabilities – possibility to define new improved filters for Plans, Materials, Assemblies, Storages, Sources, Parts, etc.

New features

- Assemblies
- Remnants (over)production control
- Duplicate plan

Optimization

- 30% faster
- 20% decrease of cutting layouts
- Improved OptiRefine module
- Remnants (over)production control allows adjusting production of remnants and improves total yield

Reports

- New - filtering by date
- Exports embedded into Reports
- New embedded report generator and editor for customization of reports
- Improved and extended labeling systems and report sets
- Possibility to define custom defined data views and statistics

Imports

- Added imports from MS Excel files, MS Access files, CSV format
- Added imports from data sources (Oracle, MS SQL Server, MySQL, Firebird, etc.) via connection string
- Added "default" values and "multiply by" values when defining import
- Added filter allowing to filter import data

Exports

- Export to CSV, MS Excel files, PDF, XML, Open Document Text, Open Document Spreadsheet
- Send by email feature
- Improved export to TXT, RTF, and HTML

Connectivity

- Distributed connectivity allowing various scenarios in different environments (local, LAN, WAN)
- Improved support for LAN – user management, logon security, etc.
- WAN optimization - application optimized for running in WAN environment

Technical Specifications

Sources (stock bars):

- Max length of source: 100,000,000 (100 million)
- Max number of sources per plan: 1,000,000 (1 million)
- Max number of source sizes per plan: 10,000 (10 thousand)

Parts (pieces to cut):

- Max length of part: 100,000,000 (100 million)
- Max number of parts per plan: 1,000,000 (1 million)
- Max number of part sizes per plan: 10,000 (10 thousand)

Before You Try

System Requirements

CutLogic 1D has been designed to work with Microsoft Windows 2000, XP, Vista, Windows 7.

Minimum

- Intel Pentium® III 800 MHz or AMD Athlon 800 MHz
- 512 MB RAM (1024 MB RAM for Windows 7)
- Display 800x600; 65,536 colors
- 30 MB of free Hard Disk space
- Microsoft Windows 2000/XP/Vista/Windows 7
- Mouse

Recommended

- Pentium® 4 or AMD Athlon – 1400 Mhz or more
- 1054 MB RAM (2048 MB RAM for Windows 7)
- True Color Video Card (16,8 M colors) - 1024x768
- 50 MB of free Hard Disk space
- Microsoft Windows 2000/XP/Vista/Windows 7
- Mouse

Download and Installation

Download

You are welcome to download the trial version of our software at www.tmachines.com . You can freely download CutLogic 1D and run it on your computer for a trial period of 30 days. Click the download link in Download section. Downloading should start automatically.

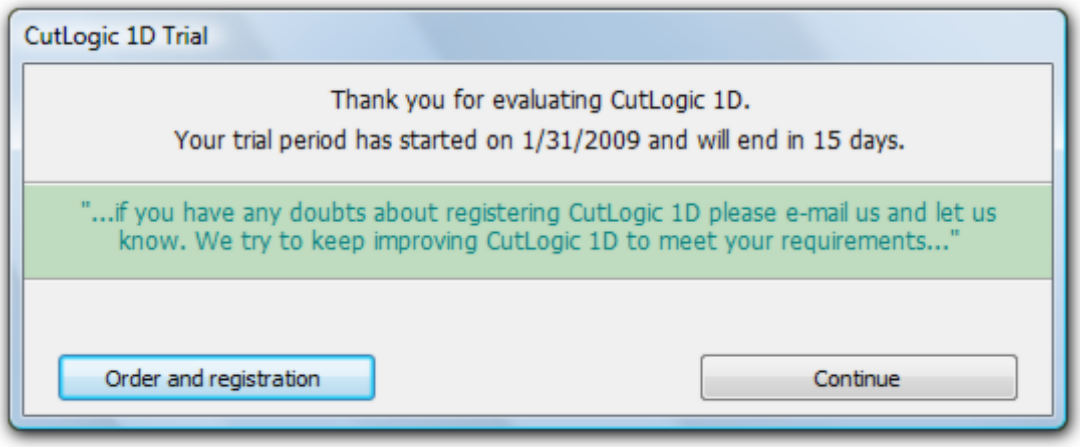
Installation

After the download is finished, go to the download folder and locate the file (i.e. setupcl1d.exe). Double-click the file to start the installation.

Trial Version

The CutLogic 1D is available in three editions: Standard, Professional and Enterprise. The most of features and functions in trial edition is unlocked on Enterprise level in order to demonstrate its capabilities; however some features are not available in trial edition. See chapter Editions comparison for details.

When launching CutLogic 1D in trial mode following dialog appears at start:


CutLogic 1D Trial
Thank you for evaluating CutLogic 1D.
Your trial period has started on 1/31/2009 and will end in 15 days.
"...if you have any doubts about registering CutLogic 1D please e-mail us and let us know. We try to keep improving CutLogic 1D to meet your requirements..."
Order and registration
Continue

You can see how many days remain till the end of trial period and you can also order and register full version of the program. Click the button [Continue] to start program.

Before You Buy

Editions Comparison

	Trial Edition	Standard Edition	Professional Edition	Enterprise Edition
Program limitations				
Time limitation	30 days	Unlimited	Unlimited	Unlimited
Plan limitations [per one cutting plan]				
Max total number of all parts	Unlimited	1,000	10,000	Unlimited
Max number of unique parts (part sizes)	Unlimited	20	100	Unlimited
Network features				
LAN support			•	•
WAN support				•
Product features				
20 predefined reports	•	•	•	•
Fully customizable reports			•	•
Inventory Materials and Storages	•	•	•	•
Inventory Assemblies - copy to plan	•		•	•
Inventory Assemblies - copy to multiple plans				•
OptiRefine module	•		•	•
Cutting settings and parameters				
Saw kerf (cut width)	•	•	•	•
Left / right trim cut	•	•	•	•
Gripping size	•	•	•	•
Rubbing allowance	•	•	•	•
Minimize layout (pattern) count			•	•
Minimum length of remnant (reusable rest)	•	•	•	•
Storage for new remnants	•	•	•	•
Remnants production control				•
Restricted length of rests From - To	•		•	•
Max number of parts in layout	•		•	•
Max number of different part lengths in layout	•		•	•
Min length difference among parts in layout	•		•	•
Min repeat of layout	•			•
Import from				
Clipboard	•	•	•	•
TXT format	•	•	•	•
CSV format	•	•	•	•
MS Excel format	•		•	•
MS Access format				•

Connection string file				•
Export to				
TXT format		•	•	•
CSV format		•	•	•
MS Excel format			•	•
PDF format				•
HTML format				•
XML format				•
RTF format				•
ODT format				•
ODS format				•

Ordering and Purchasing

Order the registered version of CutLogic 1D on-line through the World Wide Web at our site www.tmachines.com. Here you find our latest pricing information, instructions on how to order, and link for ordering online using a secure server, or by phone or fax. Our registrations are handled by a professional software registration company.

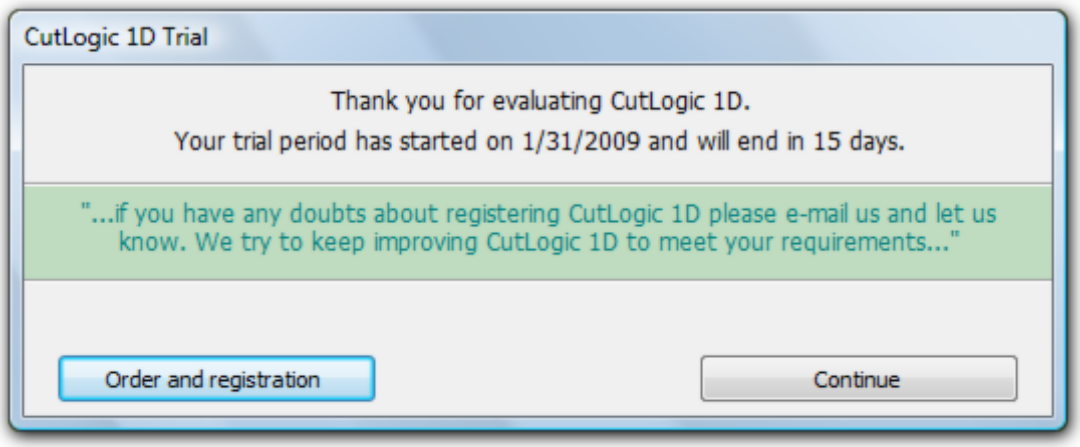
You can order CutLogic 1D securely online, or by fax, through share-it!, global e-commerce provider for software sales via Internet. You can use a credit card, debit card, bank transfer, check, cash, or purchase order / order on account, including billing in various currencies.

You can also order CutLogic 1D directly at sales@tmachines.com and pay via wire transfer to our bank account after getting an electronic invoice from us.

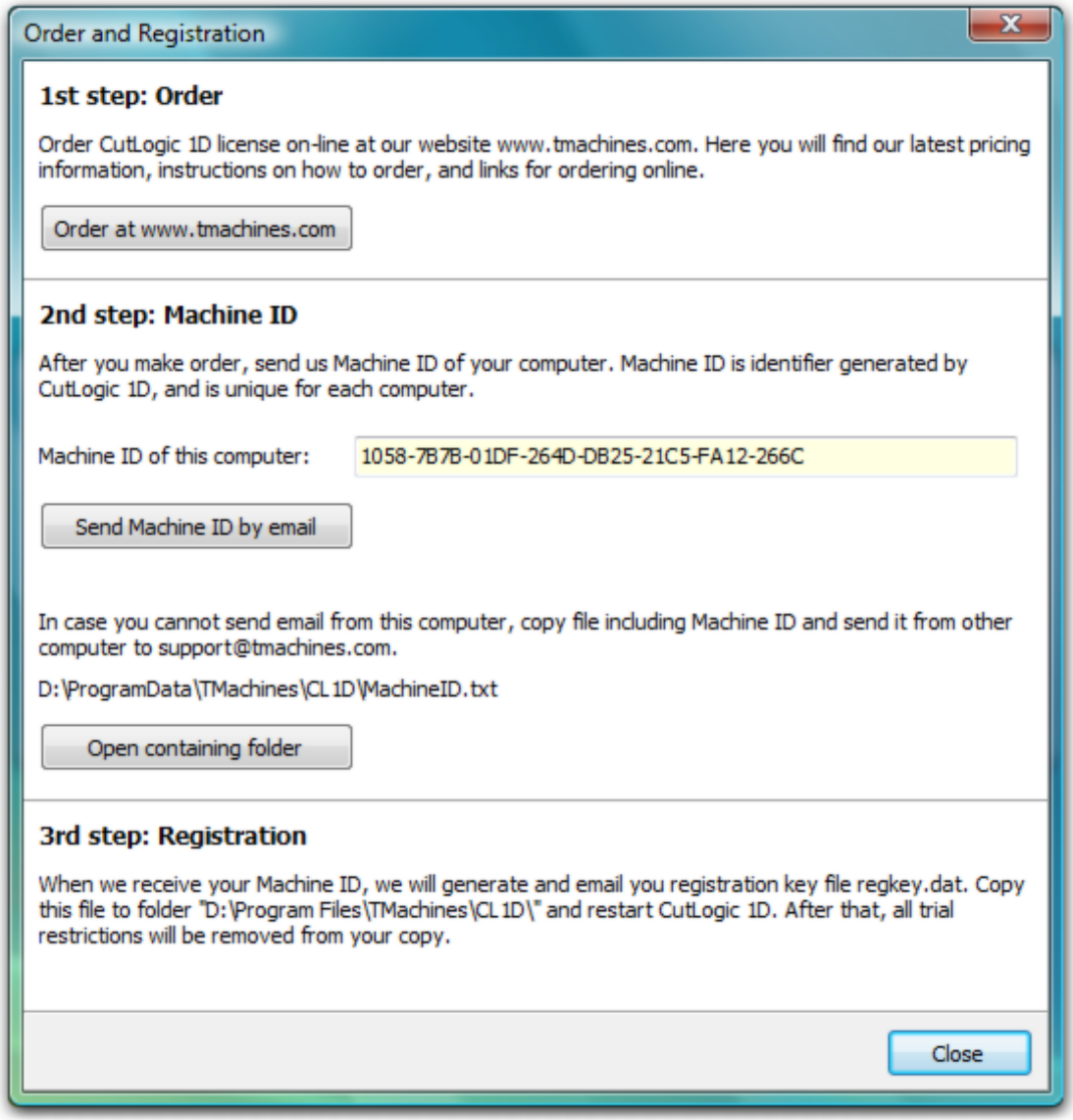
When purchasing CutLogic 1D, technical support by email and upgrades for the first year are included.

Registration

When you start CutLogic 1D, "CutLogic 1D Trial" dialog window displays your remaining trial period.


CutLogic 1D Trial
Thank you for evaluating CutLogic 1D.
Your trial period has started on 1/31/2009 and will end in 15 days.
"...if you have any doubts about registering CutLogic 1D please e-mail us and let us know. We try to keep improving CutLogic 1D to meet your requirements..."
Order and registration
Continue

Click the [Order and registration] button and follow the instructions.


Order and Registration
1st step: Order
Order CutLogic 1D license on-line at our website www.tmachines.com. Here you will find our latest pricing information, instructions on how to order, and links for ordering online.
Order at www.tmachines.com
2nd step: Machine ID
After you make order, send us Machine ID of your computer. Machine ID is identifier generated by CutLogic 1D, and is unique for each computer.
Machine ID of this computer:
1058-7B7B-01DF-264D-DB25-21C5-FA12-266C
Send Machine ID by email
In case you cannot send email from this computer, copy file including Machine ID and send it from other computer to support@tmachines.com.
D:\ProgramData\TMachines\CL1D\MachineID.txt
Open containing folder
3rd step: Registration
When we receive your Machine ID, we will generate and email you registration key file regkey.dat. Copy this file to folder "D:\Program Files\TMachines\CL1D\" and restart CutLogic 1D. After that, all trial restrictions will be removed from your copy.
Close

NOTE! After we receive the license fee and Machine ID, we send you (usually in several hours) a registration key by e-mail with detailed instructions on how to use it. Email will be sent to the e-mail address that you stated in the order.

Program Overview

General

This chapter describes basic information about CutLogic 1D program good to know before you start to use the program.

The Basic Concepts and Terms

This chapter explains basic concepts and commonly used terms used in the program.

Commonly used terms

Program or CutLogic 1D means CutLogic 1D software application.

Optimization is process of finding the cutting plan with the optimized cutting layouts.

Plan represents definition of cutting plan.

Source represents material available for cutting; it is input into cutting plan.

Part represents piece of material required to be cut; it is input into cutting plan.

Remnant represents reusable rest of Source (also called reusable off-cut).

Scrap represents useless rest of Source.

View represents unique point of view or perspective on data.

Master View represents master part of View.

Detail View represents detailed part of View.

Master Tab is graphical control element (button) in the Program displaying given Master View.

Detail Tab is graphical control element (button) in the Program displaying given Detail View.

Report represents special layout displaying the data in printable format.

Filter represents set of conditions filtering data in given View or in given Report.

Material represents definition of unique material. One plan may contain only one Material.

Assembly represents unique definition of logically grouped Parts.

Storage represents definition of unique logical or physical storage or warehouse for Materials.

Basic concepts

All data in CutLogic 1D are stored in database in form of the database tables. Data from the database are displayed via Views. Views represent unique point of view on the data.

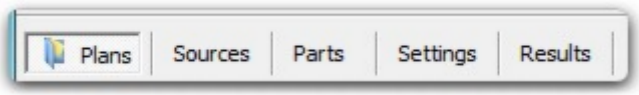
CutLogic 1D contains following Views:

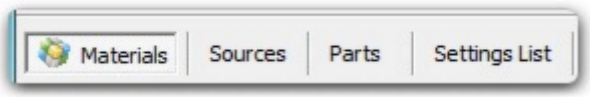
- Plans
- Materials
- Assemblies
- Storages

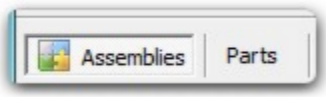
You can switch among these Views by clicking one of the Icons representing given view in the Tool Panel.

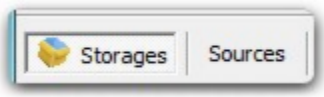
Every View consists of one Master View and one or more Detail Views. Master View is represented by Master Tab in the program, Detail View is represented by Detail Tab . Master Tab is first tab displayed in Tab Area from the left and contains small icon.

Active Views are displayed at Tab Area in following way:







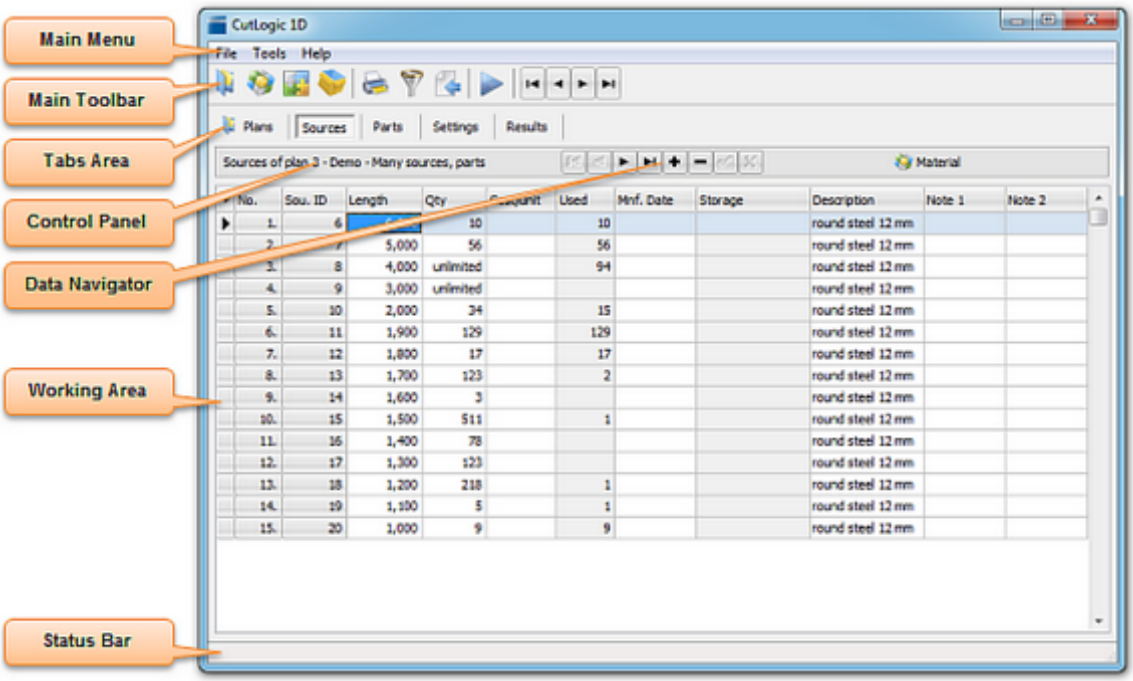


CutLogic 1D is unique in term of handling and displaying master–detail relations of data. If Detail View is active, following navigator is displayed in Tool Panel:

This navigator allows you to browse the records in related Master View while detailed information for active Detail View is displayed on the screen. This is very helpful feature allowing you better orientation among your data.

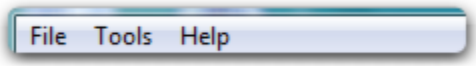
The Main Window

This chapter describes basic information about Graphical User Interface of CutLogic 1D.



The Main Window contains following areas:

Main Menu



This drop-down menu is basic control element for navigation and executions of logically grouped commands.

Main Toolbar

The Toolbar is a collection of buttons and other control elements providing quick access to commonly used commands.

Plans	[Ctrl+1]	Activates the Plans view allowing you to manage your plans, their sources, parts, settings and results
Materials	[Ctrl+2]	Activates the Materials view allowing you to manage your materials, their sources and parts

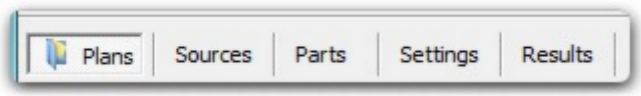
Assemblies	[Ctrl+3]	Activates the Assemblies view allowing you to manage your assemblies and their parts
Storages	[Ctrl+4]	Activates the Storages view allowing you to manage your storages and their sources
Reports	[Ctrl+P]	Displays the Reports form with list of available reports in new window
Filter	[Ctrl+F]	Displays the Filter definition form in new window
Import	[Ctrl+I]	Displays the Import form in new window
Start Optimization	[F3]	Starts calculation of optimal cutting plan for given actual plan
Stop Optimization	[ESC]	Stops calculation

Following data navigator serves for navigation in given Master View. This navigator is displayed only if other than Master Tab is chosen (active). This navigator allows you to browse the records in given Master View while detailed information from active Detail View is displayed in Working Area.

Function of the buttons of navigator is following:

- First record of given Master View
- Prior record of given Master View
- Next record of given Master View
- Last record of given Master View

Tabs Area



Tabs are graphical control elements representing Master and/or Detail Views. Tabs Area shows one Master and one or more Detail Tabs. Master Tab is the first tab from the left in Tabs Area and contains small graphical icon.

Control Panel

Control Panel displays basic information about active Master View and contains data navigator used for navigation in Working Area and optionally displays other control elements (buttons).

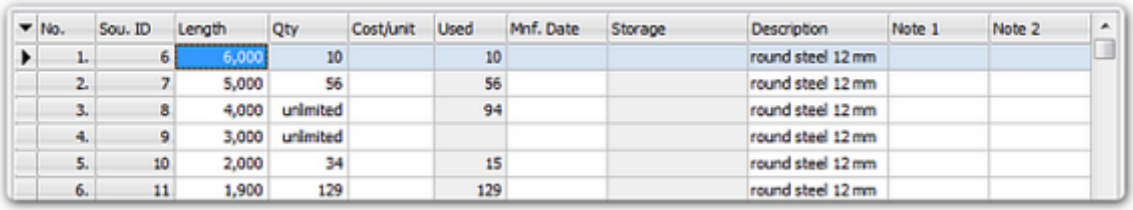
Data navigator

Data navigator serves for navigation and editing of data displayed in Working Area .

Function of the buttons of navigator is following:

- Sets the current record as the first record
- Sets the current record as the previous record
- Sets the current record as the next record
- Sets the current record as the last record
- Inserts a new record
- Deletes the current record
- Posts changes from the current record to the database
- Cancels changes made in the current record

Working Area

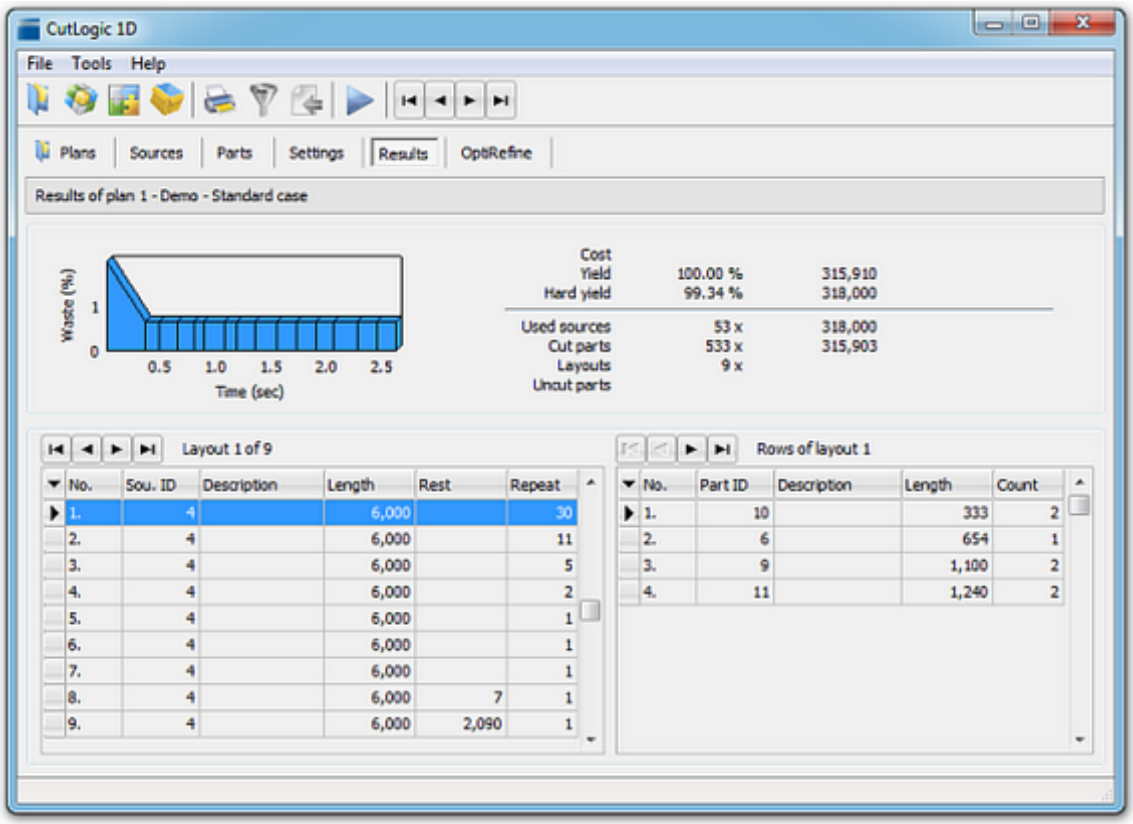


	No.	Sou. ID	Length	Qty	Cost/unit	Used	Mnf. Date	Storage	Description	Note 1	Note 2
▶	1.	6	6,000	10		10			round steel 12 mm		
	2.	7	5,000	56		56			round steel 12 mm		
	3.	8	4,000	unlimited		94			round steel 12 mm		
	4.	9	3,000	unlimited					round steel 12 mm		
	5.	10	2,000	34		15			round steel 12 mm		
	6.	11	1,900	129		129			round steel 12 mm		

Working Area is the main part of the form, where you can manage your data like Plans, Materials, Storages and Assemblies. Data in Working Area are usually organized in rows (records) and columns (fields).

Light blue color represents active row.
Dark blue color represents active field within selected row.
Non editable fields are displayed with grey background.

Data in Working Area are, in some cases, organized and displayed in different format as, for example, in Results form:



	No.	Sou. ID	Description	Length	Rest	Repeat
▶	1.	4		6,000		30
	2.	4		6,000		11
	3.	4		6,000		5
	4.	4		6,000		2
	5.	4		6,000		1
	6.	4		6,000		1
	7.	4		6,000		1
	8.	4		6,000	7	1
	9.	4		6,000	2,090	1

	No.	Part ID	Description	Length	Count
▶	1.	10		333	2
	2.	6		654	1
	3.	9		1,100	2
	4.	11		1,240	2

Status Bar

Status Bar displays information related to element you point on by mouse (e.g. input line in cutting settings).

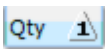
The Menus

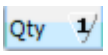
File		
Plans	[Ctrl+1]	Activates the Plans view allowing you to manage your plans, their sources, parts, settings and results.
Inventory		This contains following three sub-menu options...
Materials	[Ctrl+2]	Activates the Materials view allowing you to manage your materials, their sources and parts.
Assemblies	[Ctrl+3]	Activates the Assemblies view allowing you to manage your assemblies and their parts.
Storages	[Ctrl+4]	Activates the Storages view allowing you to manage your storages and their sources.
Start Optimization	[F3]	Starts calculation of optimal cutting plan for given actual plan.
Stop Optimization	[Esc]	Stops calculation.
Reports	[Ctrl+P]	Displays the Reports form in new window. Allows working with available reports like printing, previewing, editing and others.
Filter	[Ctrl+F]	Displays the Filter definition form in new window. Allows defining filter conditions and others.
Import...		This contains following four sub-menu options...
Import data from Excel, Access, csv, txt or connection file...	[Ctrl+I]	Displays the Import form in new window. Allows importing data.
Import data from clipboard	[Ctrl+J]	Allows importing data from clipboard.
Import plan from single file (to new plan)	[Ctrl+K]	Allows importing whole cutting plan from single data file. The data are imported to new created plan.
Import plan from single file (to current plan)	[Ctrl+L]	Allows importing whole cutting plan from single data file. The data are imported to currently selected plan.
Export...		This contains following three sub-menu options...
Export data to csv,	[Ctrl+P]	Displays the Reports form in new window.

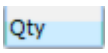
txt, Excel, pdf, rtf, html, etc.		Allows exporting data to csv, txt, xls, pdf, html, xml, rtf, odt or ods file.
Export plan to single file...	[Ctrl+E]	Allows exporting current plan to single data file.
Export to RazorGage...	[Ctrl+G]	Allows exporting cutting layouts to RazorGage system.
Exit		Quits the application.
Tools		
Calculator	[F8]	Displays the windows calculator.
Database		This contains following four sub-menu options...
Data		Opens the Data Administration on Data Tab in new window. Allows setup of backup and restore procedures.
Server		Opens the Data Administration on Server Tab in new window. Allows setup of server connection.
Users		Opens the Data Administration on Users Tab in new window. Allows managing the users.
Stats		Opens the Data Administration on Stats Tab in new window. Shows database statistics.
Order and Registration		Displays the information how to order and register the full version.
Older versions		
Import Data from Version 3.3 and Lower		Displays the Import form in new window. Allows importing data from older versions.
Options...	[Ctrl+O]	Displays the Options form with program options in new window.
Help		
CutLogic 1D Help	[F1]	Displays the Contents of this help file.
CutLogic 1D Online Help		Opens CutLogic 1D online help in your web browser.
Visit CutLogic 1D Web Site		Opens homepage of CutLogic 1D in your web browser.
About		Displays the information about the Product name and current version. It also contains the support link and our website address.

Sorting the Data

This feature helps you to manage your data displayed in Working Area. Click the label of given column by left mouse button to sort displayed records. Records will be sorted according to data values in selected Column.

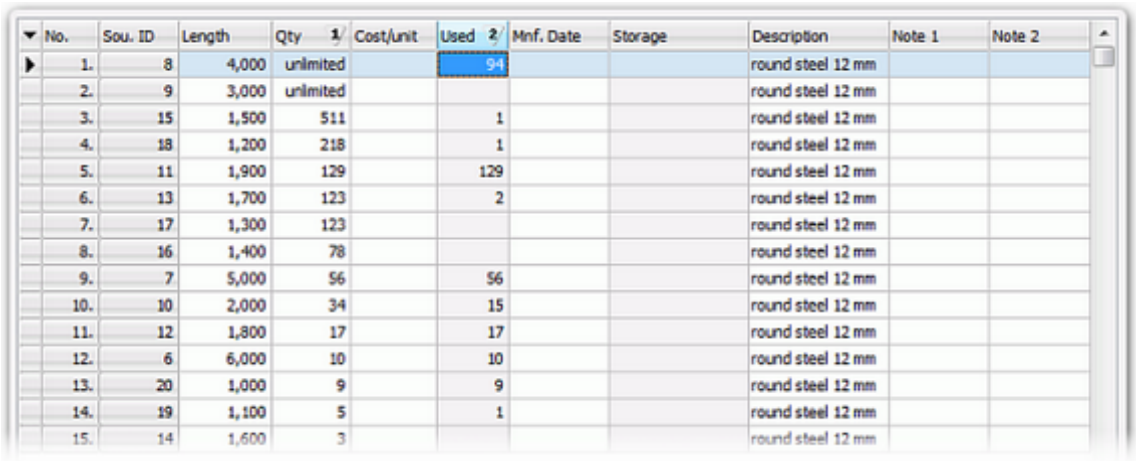
First click sorts data in ascending order. 

Second click sorts data in descending order. 

Third click cancels sorting in selected column. 

Program also allows defining of sorting over multiple columns.
Hold [Ctrl] button and click by left mouse button on the labels of given columns to activate sorting in more columns.

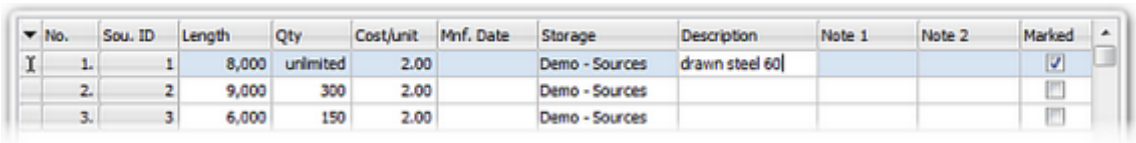
Following example shows sorting applied in "Qty" and "Used" columns:



No.	Sou. ID	Length	Qty 1	Cost/unit	Used 2	Mnf. Date	Storage	Description	Note 1	Note 2
1.	8	4,000	unlimited		94			round steel 12 mm		
2.	9	3,000	unlimited					round steel 12 mm		
3.	15	1,500	511		1			round steel 12 mm		
4.	18	1,200	218		1			round steel 12 mm		
5.	11	1,900	129		129			round steel 12 mm		
6.	13	1,700	123		2			round steel 12 mm		
7.	17	1,300	123					round steel 12 mm		
8.	16	1,400	78					round steel 12 mm		
9.	7	5,000	56		56			round steel 12 mm		
10.	10	2,000	34		15			round steel 12 mm		
11.	12	1,800	17		17			round steel 12 mm		
12.	6	6,000	10		10			round steel 12 mm		
13.	20	1,000	9		9			round steel 12 mm		
14.	19	1,100	5		1			round steel 12 mm		
15.	14	1,600	3					round steel 12 mm		

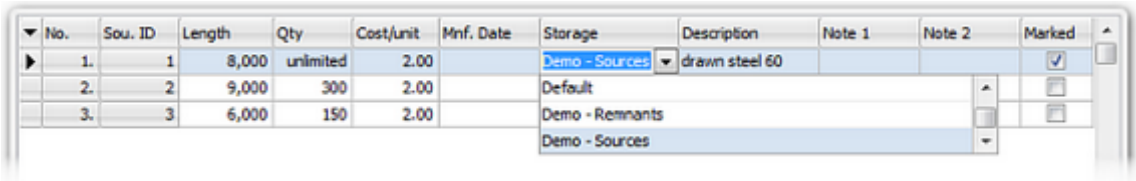
Editing the Data

You can use data navigator or mouse for navigation within the Working Area.
Single left click on active editable field or pressing [Enter] key switch selected field in Edit mode.
Edit mode allows you either to enter the data directly from the keyboard or to pass data from the clipboard. Some fields are restricted only by the length – the maximum number of characters.



No.	Sou. ID	Length	Qty	Cost/unit	Mnf. Date	Storage	Description	Note 1	Note 2	Marked
1.	1	8,000	unlimited	2.00		Demo - Sources	drawn steel 60			☑
2.	2	9,000	300	2.00		Demo - Sources				☐
3.	3	6,000	150	2.00		Demo - Sources				☐

Some editable fields are restricted by the list of predefined values. Enter the value for such field by choosing one from related pick list.



No.	Sou. ID	Length	Qty	Cost/unit	Mnf. Date	Storage	Description	Note 1	Note 2	Marked
1.	1	8,000	unlimited	2.00		Demo - Sources	drawn steel 60			☑
2.	2	9,000	300	2.00		Default				☐
3.	3	6,000	150	2.00		Demo - Remnants				☐
						Demo - Sources				

If you leave edited row new values are automatically posted into database. You can also post changes into database by clicking the post edit button ☑ in the Data navigator.

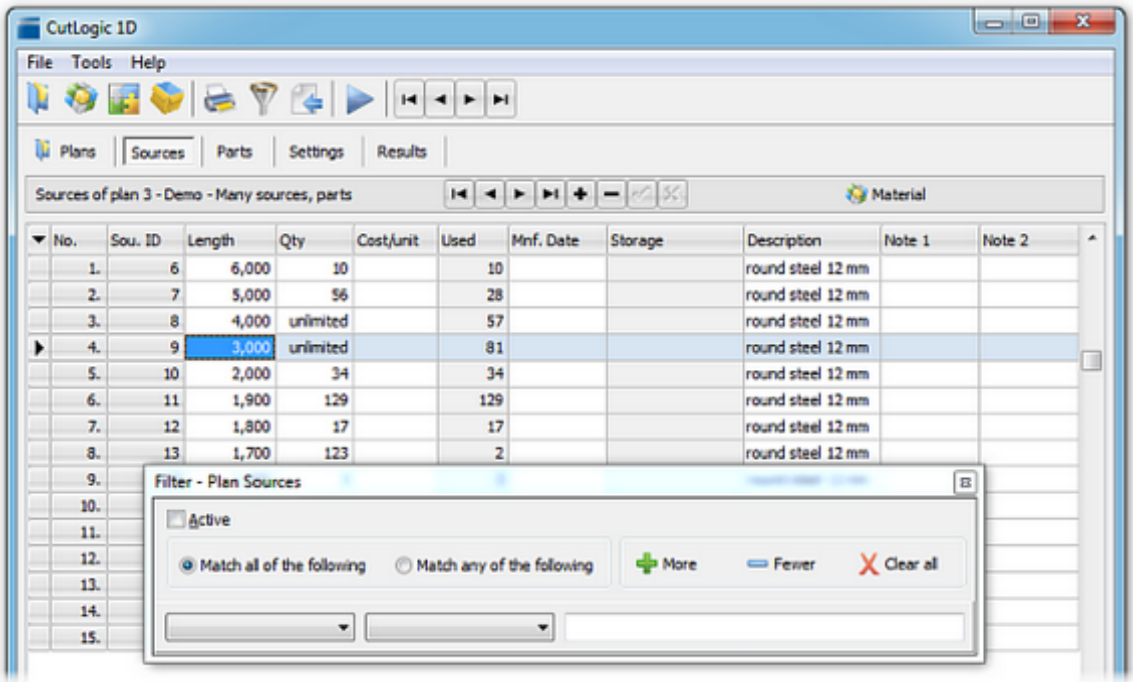
Filtering the Data

Filters represent powerful tool for data presentation. You can restrict displayed data by defining filtering conditions in Filter definition form. You can define one unique filter for each of following Views:

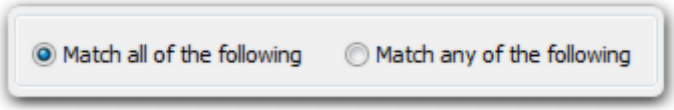
- Plans
- Plan Sources
- Plan Parts
- Materials
- Material Sources
- Material Parts
- Assemblies
- Assembly Parts
- Storages
- Storage Sources

Definition of Filter

By clicking the button in the Main Toolbar or by pressing keyboard shortcut [Ctrl+F] the Filter definition form opens in new window.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 3 - Demo - Many sources, parts
Material
No. Sou. ID Length Qty Cost/unit Used Mnf. Date Storage Description Note 1 Note 2
1. 6 6,000 10 10 round steel 12 mm
2. 7 5,000 56 28 round steel 12 mm
3. 8 4,000 unlimited 57 round steel 12 mm
4. 9 3,000 unlimited 81 round steel 12 mm
5. 10 2,000 34 34 round steel 12 mm
6. 11 1,900 129 129 round steel 12 mm
7. 12 1,800 17 17 round steel 12 mm
8. 13 1,700 123 2 round steel 12 mm
9.
10.
11.
12.
13.
14.
15.
Filter - Plan Sources
Active
Match all of the following
Match any of the following
More
Fewer
Clear all

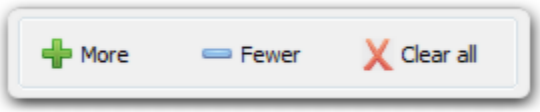
Filter definition form may contain more filtering conditions. Define logical relation among these conditions by clicking one of following radio buttons:



Match all of the following	Only data which fulfill all of the defined conditions will be displayed.
Match any of the following	Only data which fulfill at least one of the defined conditions will be displayed.

Adding and Deleting the Conditions

You can add and delete conditions of filter by clicking the chosen button.



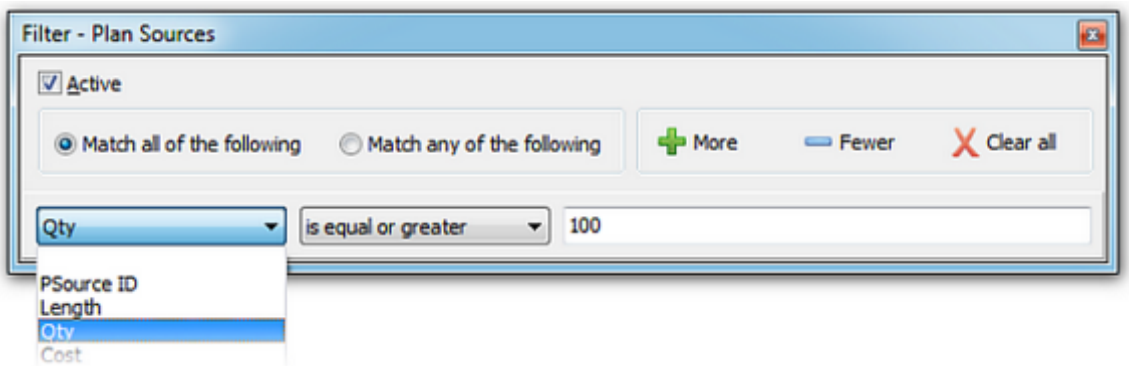
Functions of the buttons for manipulation with the filter are described as follows:

More	New condition will be added at the end of already defined conditions. It is possible to define 9 conditions at most.
Fewer	The last condition in the filter will be deleted.
Clear all	All defined conditions will be deleted.

Defining and Editing the Conditions

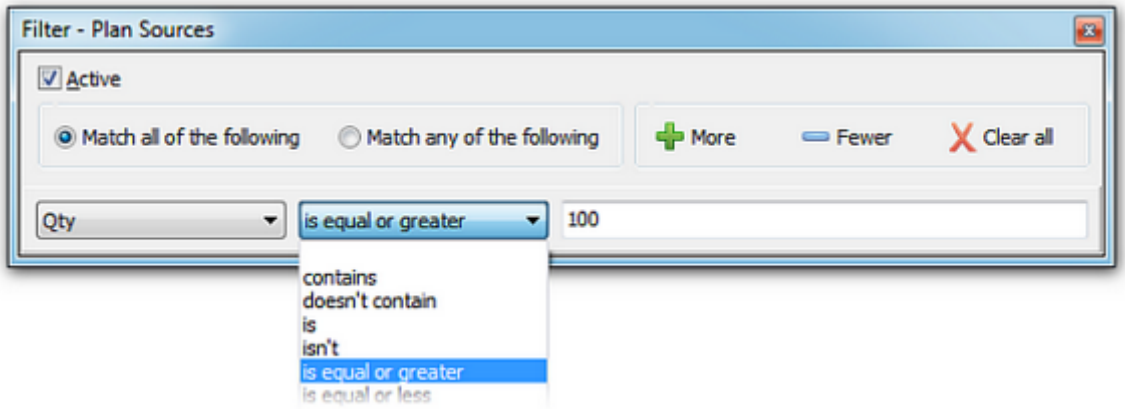
You need to choose a column, operation and define the value for each of conditions.

Select column from pre-defined list of available columns. You can define conditions even for columns not displayed in given View.



TIP! Select "Any Field" value from the list if you need to define condition for all available columns!

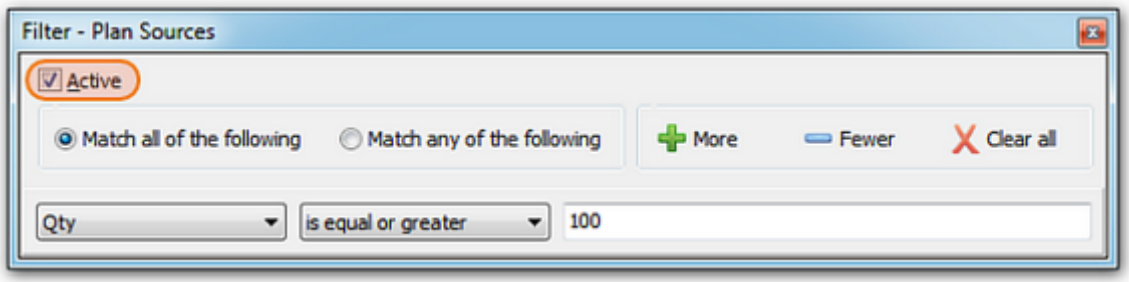
Select operation from pre-defined list of operations and enter the value for setting the filter.



NOTE! Use numeric value for numeric columns like "Plan ID" or "Qty". For other columns any string can be used.

Activation and Deactivation of Filter

When all conditions of the filter are set, you can activate it. For activation click the check box "Active" in the Filter definition form.



The filter will display only the records which fulfill defined conditions.
Activation of filter is signalized by the red labeled information in Control panel.

Keyboard Shortcuts

Shortcuts for quick access to the program features:

[Tab]	Moves to the next field (cell)
[Shift+Tab]	Moves to the previous field (cell)
[Alt+Arrow Down]	Drops down list
[Ctrl+1]	Opens Plans
[Ctrl+2]	Opens Materials
[Ctrl+3]	Opens Assemblies
[Ctrl+4]	Opens Storages
[F3]	Starts calculation of optimal cutting plan
[Esc]	Stops calculation
[Ctrl+F]	Opens Filter definition form
[Ctrl+P]	Opens Reports form
[Ctrl+O]	Opens Options form
[Ctrl+I]	Opens Import form
[Ctrl+J]	Imports data from clipboard
[Ctrl+K]	Imports cutting plan from single data file (to new plan)
[Ctrl+L]	Imports cutting plan from single data file (to current plan)
[Ctrl+E]	Exports current plan to single data file
[Ctrl+G]	Exports cutting layouts to RazorGage format file
[F8]	Opens Windows calculator
[F1]	Opens Help

In database grids only:

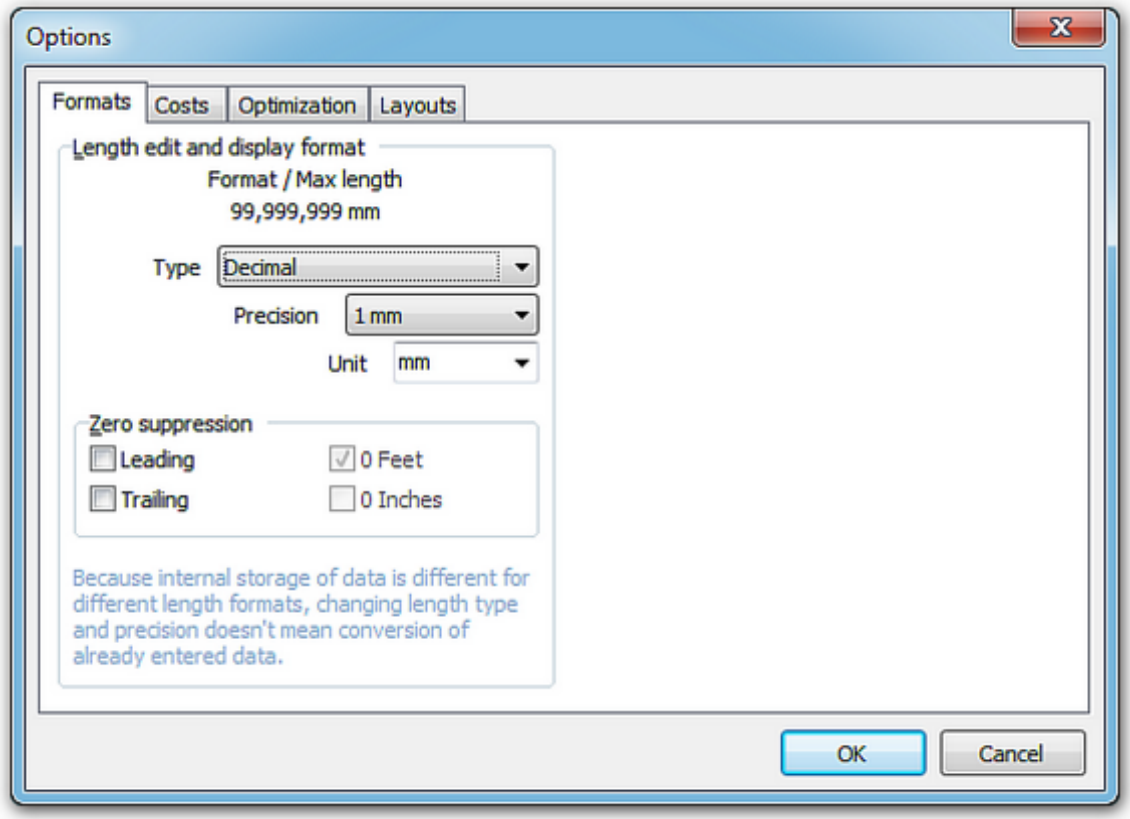
[F2]	Edits current field / Opens pick list for current field / Switches source qty 0 <-> unlimited
[Esc]	Cancels edit mode
[Ctrl+Del]	Deletes current record
[Ins]	Inserts new record
[Arrow Up]	Moves to the previous record
[Arrow Down]	Moves to the next record
[Page Up]	Moves to the previous page of records
[Page Down]	Moves to the next page of records
[Ctrl+Home]	Moves to the first record
[Ctrl+End]	Moves to the last record
[Enter/Return]	Switches between field's edit and view modes

[Arrow Left]	Moves to previous field (only if current field is in view mode) (same as [Shift+Tab])
[Arrow Right]	Moves to next field (only if current field is in view mode) (same as [Tab])
[Home]	Jumps to first (most left) field (only if current field is in view mode)
[End]	Jumps to last (most right) field (only if current field is in view mode)

Setting the Options

To work with Options, select the menu item *"Tools > Options..."* or use [Ctrl+O] keyboard shortcut.

In Options you can set the main parameters of the program. Correct representation and displaying of the data in the project depends on setting of some parameters like Type, Precision and Unit. That is the reason why we recommend to set these options immediately after the first start of the program or before entering of new cutting project.



Formats

In this option you can set Type, Precision and Unit for Length format of materials. Setting options for "Type" are given in following table:

Type	Decimal	e.g. 123,324 mm; 234,34 m; 142,2"
	Feet and decimal inches	e.g. 833' 3,99"
	Fractional	e.g. 324 31/32"
	Feet and fractional inches	e.g. 1302' 63/64"

In option "Precision", you can set the precision of entering the length format (decimal places, fractions) according to setting of the type.

In option "Unit", you can set the length unit of material (mm, cm, dm, m, '', ', in, ft).

This option is accessible only when the decimal or fractional type is set. When other types are set, this option is disabled. Defined Unit is shown in the length of material in the program and also in printing reports.

TIP! You can also set your own length unit by writing it to combo box or you don't need to fill it in at all. In this case the length unit won't be shown.

NOTE! Because for each length format internal storage of data is different, change of length type and precision doesn't convert already entered data. Therefore, it is necessary to consider this option carefully at the beginning of working with this program.

Zero suppression

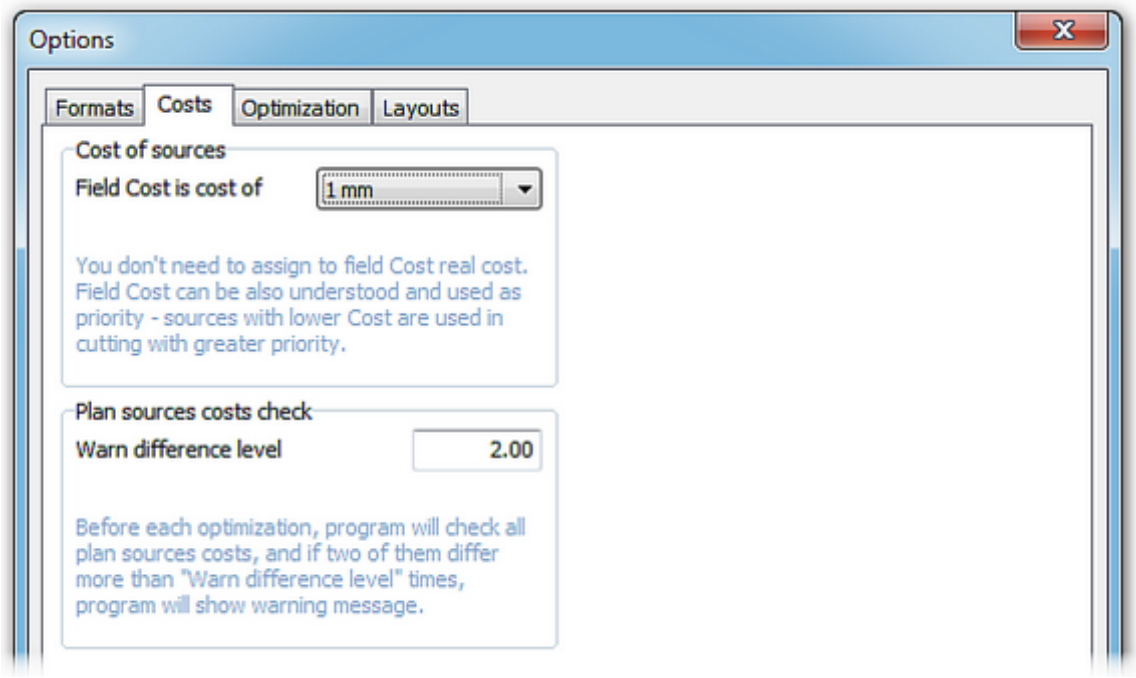
In this option you can set suppression of displaying zero values.

Leading	Suppresses displaying of leading zeros in decimal numbers.
Trailing	Suppresses displaying of trailing zeros in decimal numbers.
0 Feet	Suppresses displaying of 0 feet.
0 Inches	Suppresses displaying of 0 inches.

Costs

Cost of sources

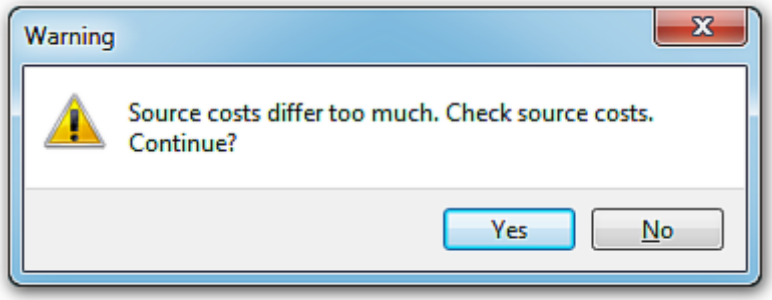
Costs of sources allows you to choose the most suitable costs metric for your sources.


Options
Formats
Costs
Optimization
Layouts
Cost of sources
Field Cost is cost of
1 mm
You don't need to assign to field Cost real cost. Field Cost can be also understood and used as priority - sources with lower Cost are used in cutting with greater priority.
Plan sources costs check
Warn difference level
2.00
Before each optimization, program will check all plan sources costs, and if two of them differ more than "Warn difference level" times, program will show warning message.

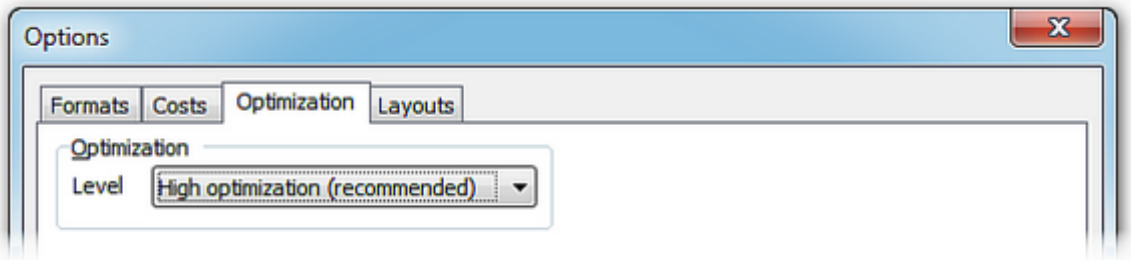
Cost metric	Description
1 length unit	Value in the field Cost represents cost of 1 length unit of source
Whole source	Value in the field Cost represents cost of the whole source
1000 length units	Value in the field Cost represents cost of 1000 length units of source
100 length units	Value in the field Cost represents cost of 100 length units of source
10 length units	Value in the field Cost represents cost of 10 length units of source
12 length units	Value in the field Cost represents cost of 12 length units of source

Plan sources costs check

You can also define maximal ratio between the highest and the lowest cost of source within the plan. If this ratio is exceeded following warning message appears.



Optimization



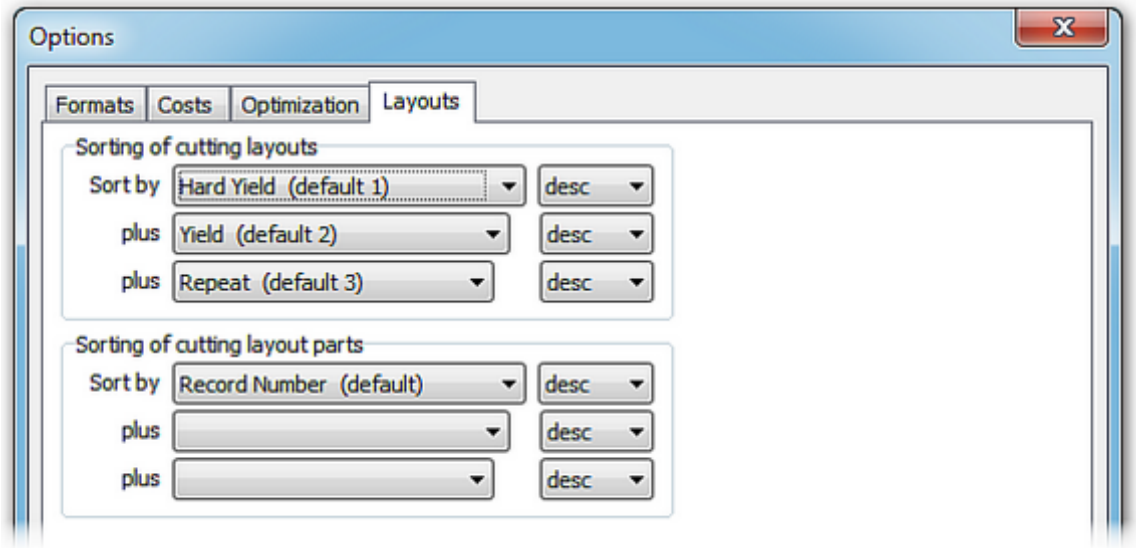
In this option you can set the efficiency of optimization according to the running time (speed) of finding the best solution (cutting layouts). Setting options are given in following table:

Level	Fast optimization	Good results with the high speed of optimization.
	High optimization (recommended)	Better results with middle speed of optimization.
	Extra deep optimization	The best results with low speed of optimization.

NOTE! The higher optimization level you set, the more time program needs for the optimization of a project.

Layouts

In this option you can set sorting of cutting layouts and cutting layout parts. Each of this data can be sorted by three different fields in individual ascending or descending order.



Working with Inventory

General

Inventory is a complement part of the program. It is used for inventorying and overall easy work with the program. You can keep here types of materials and their sources and you can also define the storages where the sources are actually placed. You can define Assemblies in order to save time and simplify working with plans.

There are two different ways how to utilize the Inventory.

- Using Inventory only for pre-defined or virtual materials and their sources and/or parts. If you want to use CutLogic 1D only for optimization purposes and if you keep real materials in different Inventory systems you can use CutLogic 1D Inventory only for pre-defined or virtual materials and/or for pre-defined or virtual sources and parts. When defining plan, you can copy pre-defined sources and/or pre-defined parts from Materials and save time needed for manual entry.
- Using Inventory in standard way. In such case all standard Inventory functions are utilized. All movements of physical material are tracked, you can run physical inventory, etc.

  See chapter Opening and Closing the Plan for related consequences.

Inventory consists of these three parts:

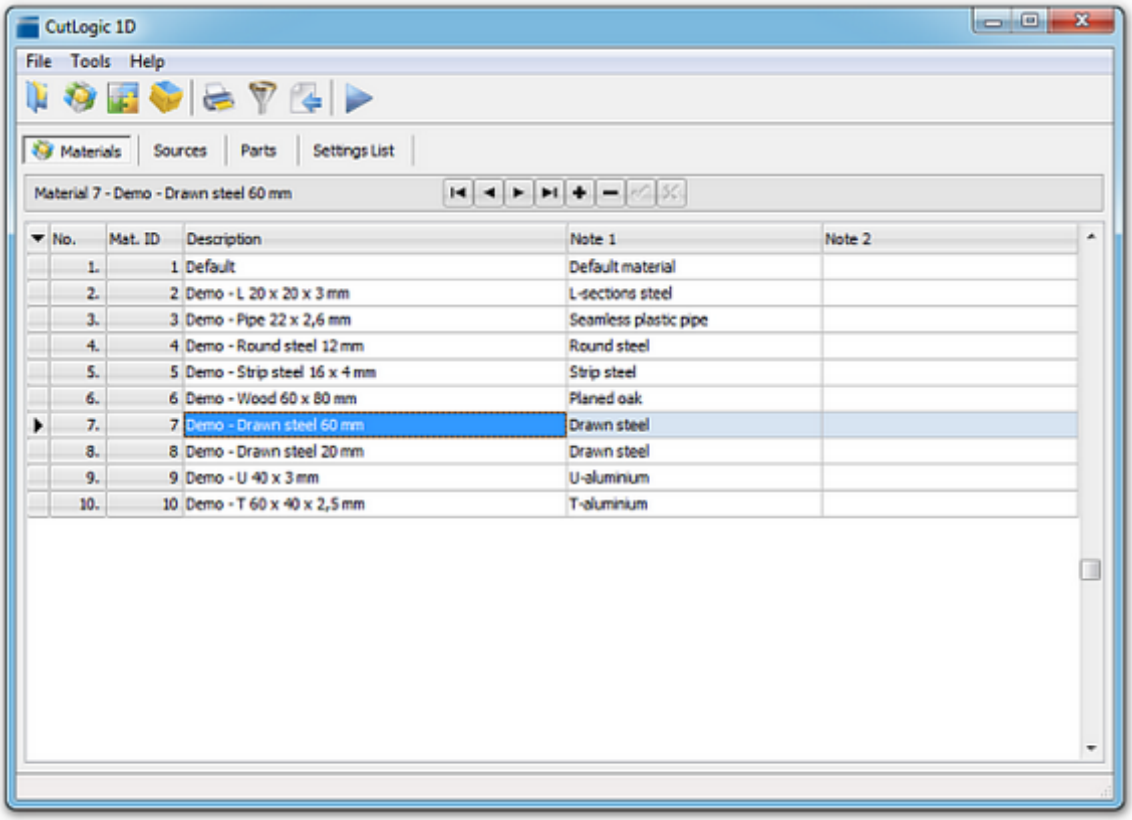
Materials

Assemblies

Storages

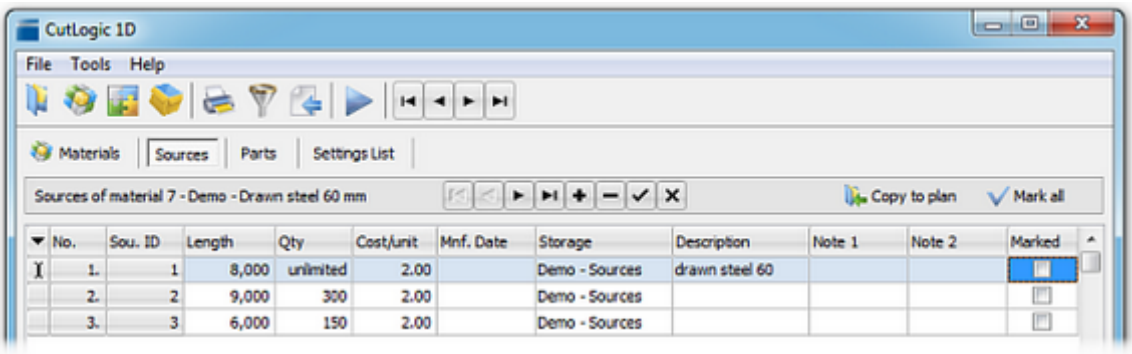
Working with Materials

To work with Materials, click the button in the Main Toolbar or select the menu item *"File > Inventory > Materials"* or use [Ctrl+2] keyboard shortcut.


CutLogic 1D
File Tools Help
Materials Sources Parts Settings List
Material 7 - Demo - Drawn steel 60 mm
No. Mat. ID Description Note 1 Note 2
1. 1 Default Default material
2. 2 Demo - L 20 x 20 x 3 mm L-sections steel
3. 3 Demo - Pipe 22 x 2,6 mm Seamless plastic pipe
4. 4 Demo - Round steel 12 mm Round steel
5. 5 Demo - Strip steel 16 x 4 mm Strip steel
6. 6 Demo - Wood 60 x 80 mm Planed oak
7. 7 Demo - Drawn steel 60 mm Drawn steel
8. 8 Demo - Drawn steel 20 mm Drawn steel
9. 9 Demo - U 40 x 3 mm U-aluminium
10. 10 Demo - T 60 x 40 x 2,5 mm T-aluminium

Click the Materials master tab to add new material and/or change descriptive information about existing materials. When new material is added you can continue in defining of sources, parts and cut settings.

Sources tab


CutLogic 1D
File Tools Help
Materials Sources Parts Settings List
Sources of material 7 - Demo - Drawn steel 60 mm
Copy to plan
Mark all
No. Sou. ID Length Qty Cost/unit Mnf. Date Storage Description Note 1 Note 2 Marked
1. 1 8,000 unlimited 2.00 Demo - Sources drawn steel 60
2. 2 9,000 300 2.00 Demo - Sources
3. 3 6,000 150 2.00 Demo - Sources

Click the Sources tab to define sources of actually set material. These sources are your real inventory and you can associate them to the concrete Storage through the field "Storage". If no Storage is defined, default storage will be used implicitly. You can enter

a short description of source to the field "Description". The field "Cost/unit" represents the cost of material. The field "Length" represents the length of the source and the field "Qty" represents total number of available sources.

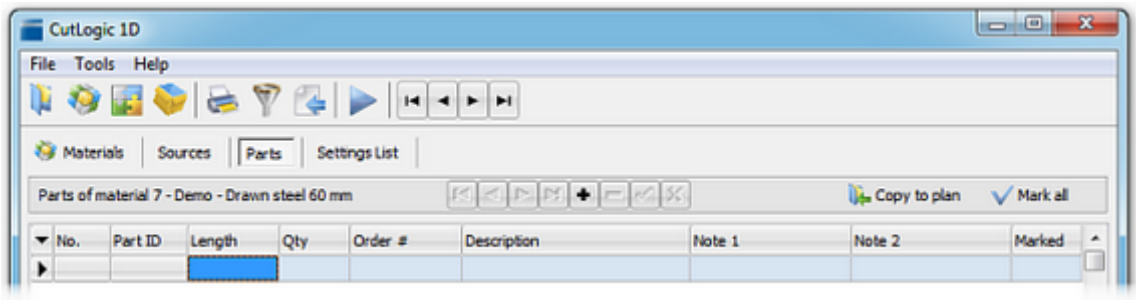
NOTE! Every line (record) in Sources represents unique micro batch with unique ID called "Origin ID". When defining a new source "Origin ID" is automatically set by program and is equal to "Source ID" displayed in Working area. All parts and remnants being cut from this micro batch share the same "Origin ID". It is extremely useful for tracking purposes of given material from original source through sub-sources or remnants to final parts. "Origin ID" is not displayed in the program, however it can be utilized in filters and reports.

It is possible to import sources of materials from any file with any structure or from clipboard.

NOTE! Sources which are defined in Materials are your real inventory. When you define and use them, you get a transparent overview of movement of materials and overall inventory in storages.

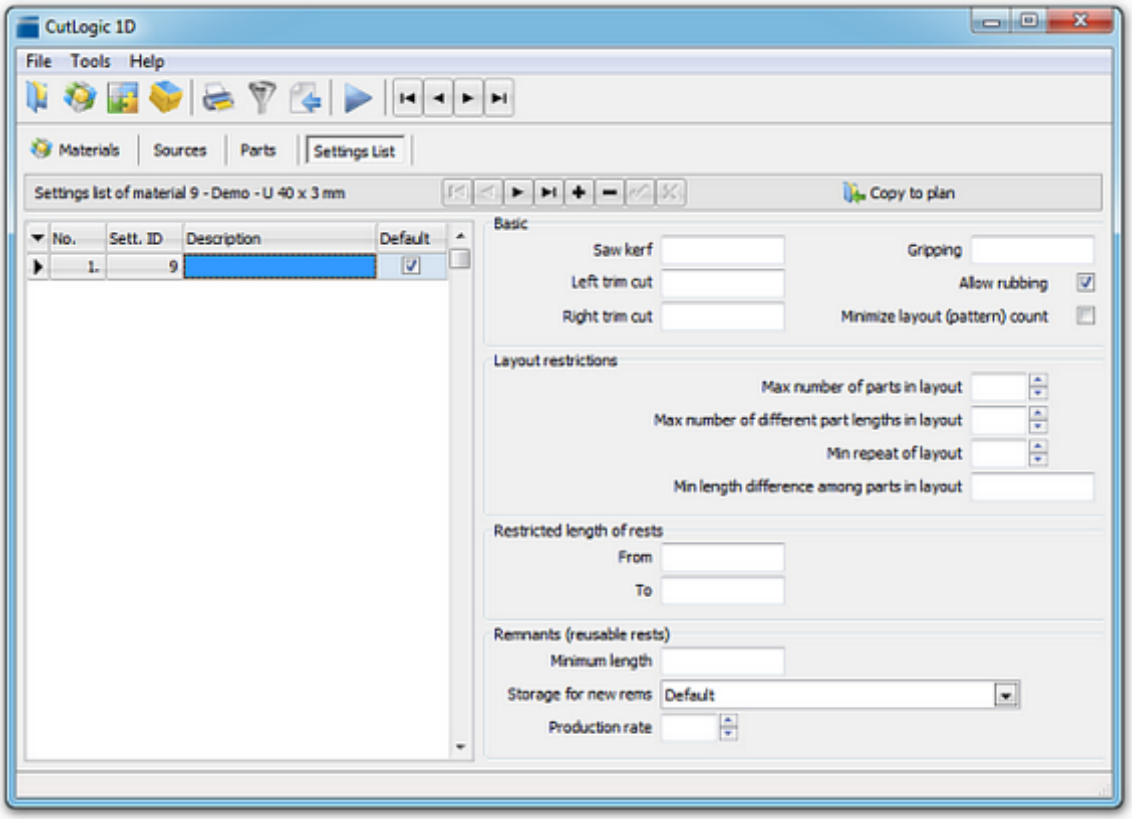
IMPORTANT! Sources with unlimited "Qty" represent pre-defined or virtual ones! Such sources are not part of your real inventory!

Parts tab



Click the Parts tab to define parts for given material. Defining of parts in Materials can be useful in cases when these predefined parts are frequently used in plans, so that copying these parts from Materials may save time and simplify preparation of new cutting plan.

Settings List tab

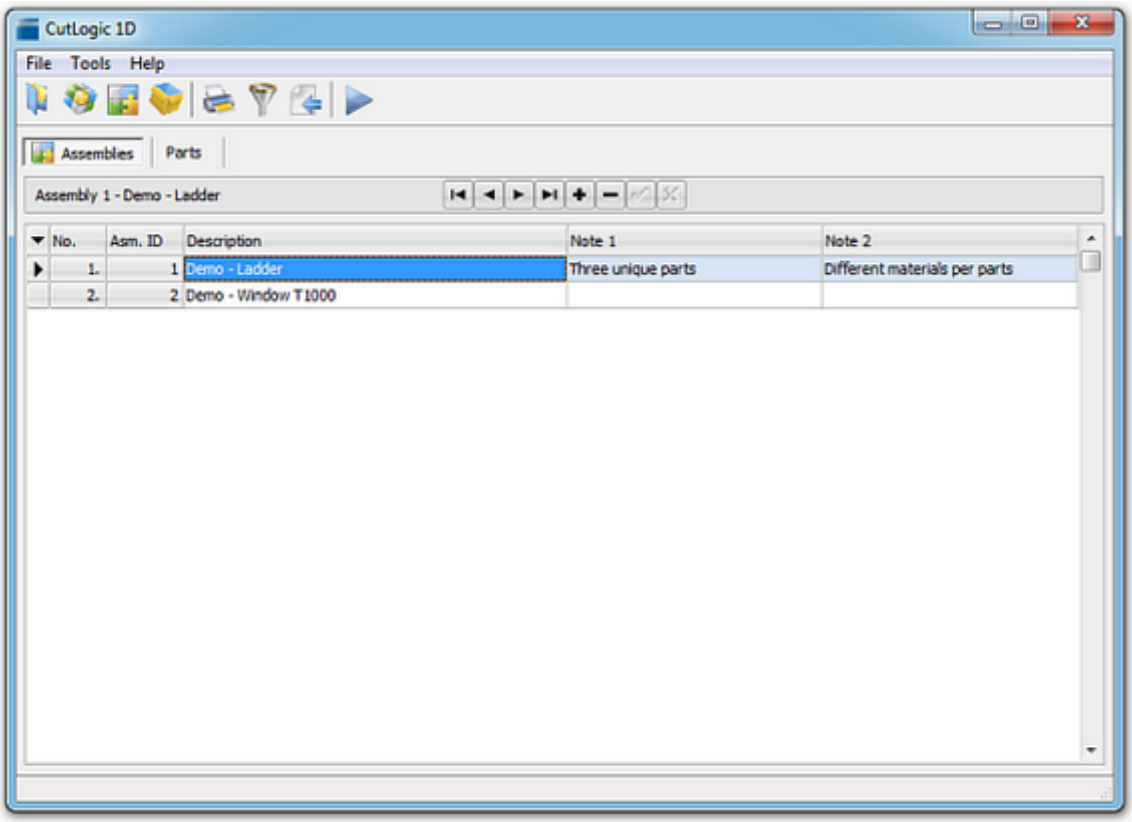


Settings list tab allows you to define list of pre-defined plan settings for given material. See more in chapter Entering Setting for the Plan.

Working with Assemblies

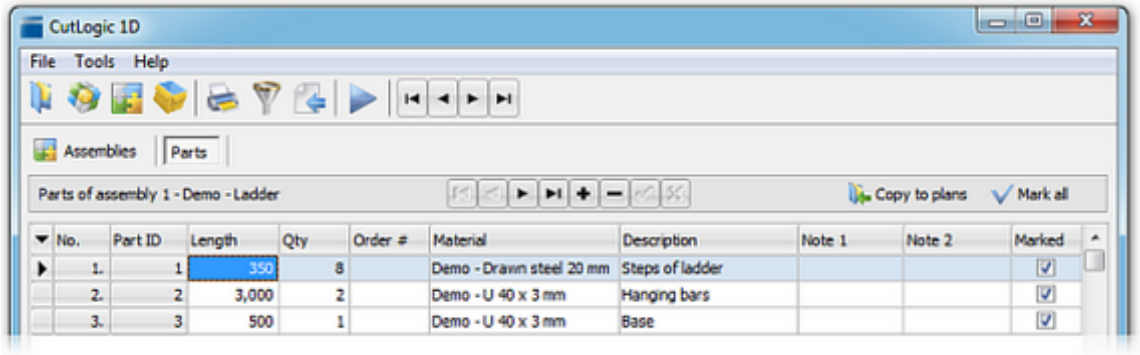
Working with Assemblies allows you to define assemblies (products) and their parts. When defining plan, this functionality allows you to copy entire assemblies instead of their parts into given plan. It brings simplification and streamlining to your work. See chapter Entering Multiple Plans from an Assembly for more information.

To work with Assemblies, click the button on the Main Toolbar or select the menu item *"File > Inventory > Assemblies"*, or use [Ctrl+3] keyboard shortcut.


CutLogic 1D
File Tools Help
Assemblies
Parts
Assembly 1 - Demo - Ladder
No. Asm. ID Description Note 1 Note 2
1. 1 Demo - Ladder Three unique parts Different materials per parts
2. 2 Demo - Window T1000

Assemblies tab allows you either to define new assembly and related descriptive information or to edit existing ones.

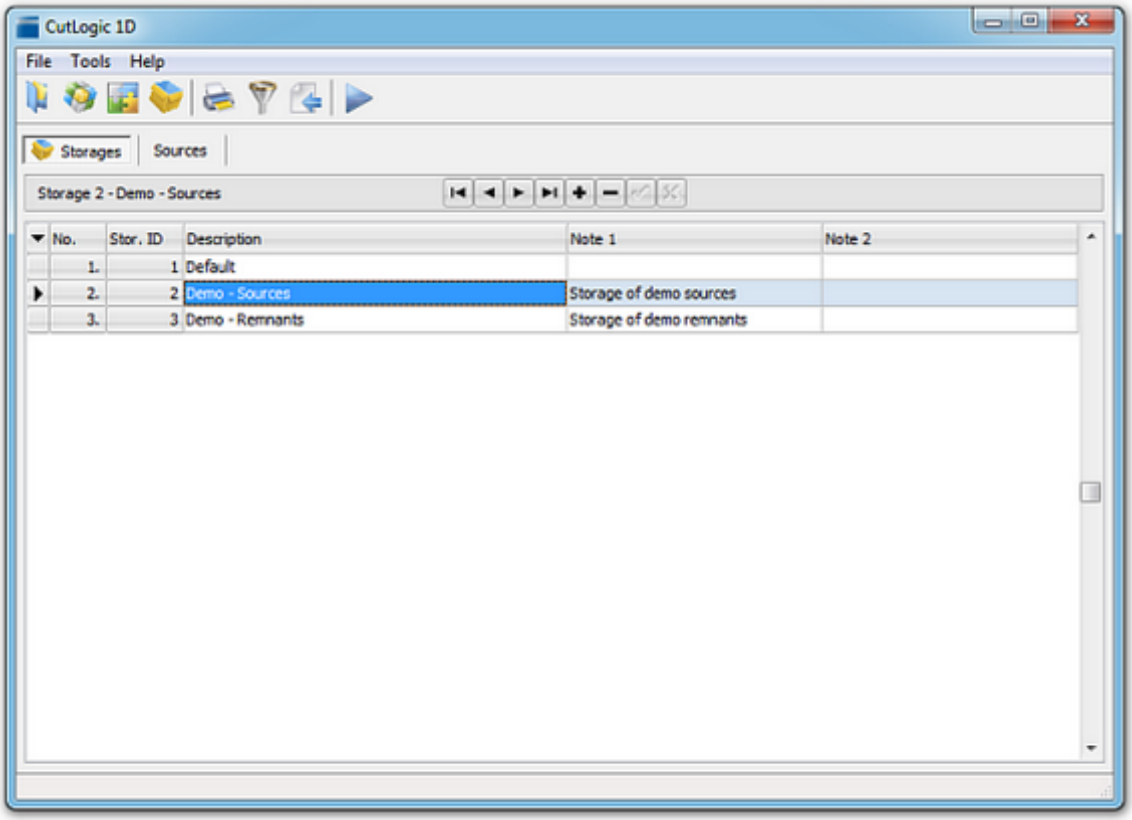
Parts tab


CutLogic 1D
File Tools Help
Assemblies
Parts
Parts of assembly 1 - Demo - Ladder
Copy to plans
Mark all
No. Part ID Length Qty Order # Material Description Note 1 Note 2 Marked
1. 1 350 8 Demo - Drawn steel 20 mm Steps of ladder
2. 2 3,000 2 Demo - U 40 x 3 mm Hanging bars
3. 3 500 1 Demo - U 40 x 3 mm Base

Parts tab allows you to define parts for given assembly. Parts in assemblies represent bill of materials. This is new point of view on how to work with parts. It can be very useful in cases when you prepare cutting plan with many assemblies. This feature brings time saving and simplifies preparation of the new cutting plan.

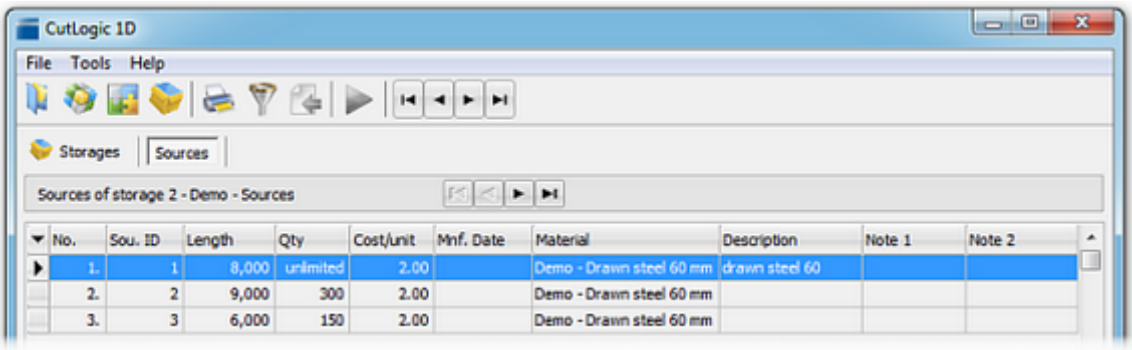
Working with Storages

To work with Storages, click the button in the Main Toolbar or select the menu item *"File > Inventory > Storages"* , or use [Ctrl+4] keyboard shortcut.


CutLogic 1D
File Tools Help
Storages
Sources
Storage 2 - Demo - Sources
No. Stor. ID Description Note 1 Note 2
1. 1 Default
2. 2 Demo - Sources Storage of demo sources
3. 3 Demo - Remnants Storage of demo remnants

Storages tab allows you to define your storages where your material is kept. Storage numbered 1 is pre-defined storage (Default) and it is not possible to delete it. You can change its Description for better customizing. If you don't define other storage when defining plan, pre-defined storage (Default) will be used.

Sources tab


CutLogic 1D
File Tools Help
Storages
Sources
Sources of storage 2 - Demo - Sources
No. Sou. ID Length Qty Cost/unit Mnf. Date Material Description Note 1 Note 2
1. 1 8,000 unlimited 2.00 Demo - Drawn steel 60 mm drawn steel 60
2. 2 9,000 300 2.00 Demo - Drawn steel 60 mm
3. 3 6,000 150 2.00 Demo - Drawn steel 60 mm

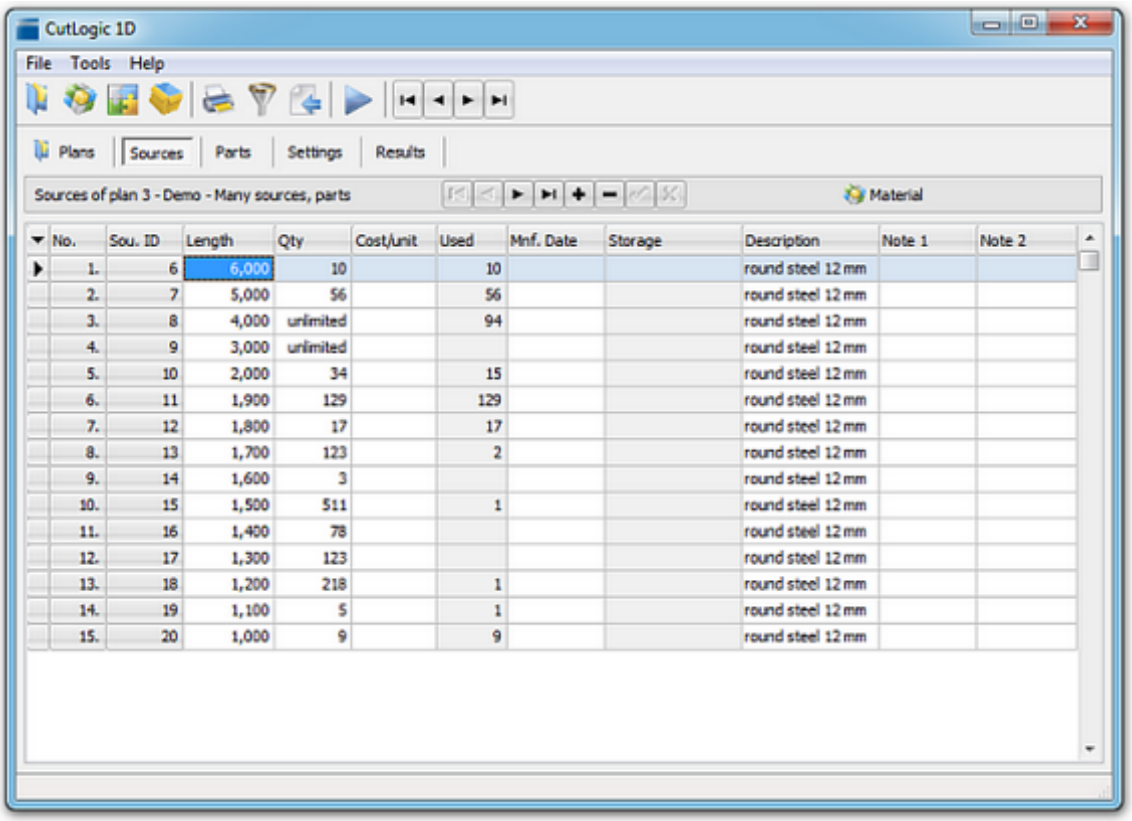
Sources tab allows you to see the list of materials stored at currently set storage. It is not possible to make any changes in this view; it is for information purpose only.

Working with Plans

General

To work with Plans, click the button in the Main Toolbar or select the menu item *"File > Plans"* or use [Ctrl+1] keyboard shortcut.

Plans are the main part of the program where you can set and manage cutting plans, sources of material, desired parts to cut and also perform the optimization of cutting layouts.



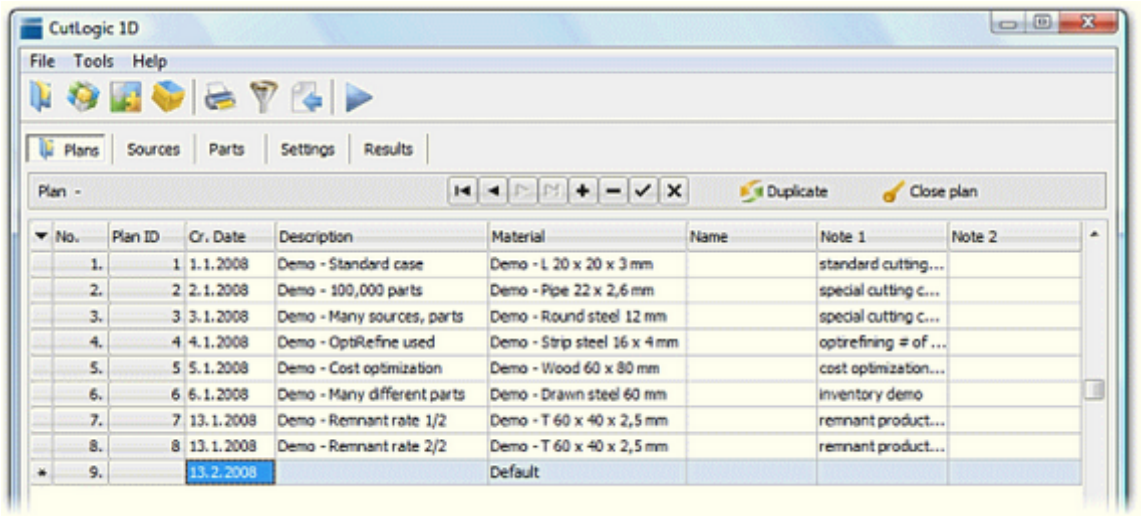
No.	Sou. ID	Length	Qty	Cost/unit	Used	Mnf. Date	Storage	Description	Note 1	Note 2
1.	6	6,000	10		10			round steel 12 mm		
2.	7	5,000	56		56			round steel 12 mm		
3.	8	4,000	unlimited		94			round steel 12 mm		
4.	9	3,000	unlimited					round steel 12 mm		
5.	10	2,000	34		15			round steel 12 mm		
6.	11	1,900	129		129			round steel 12 mm		
7.	12	1,800	17		17			round steel 12 mm		
8.	13	1,700	123		2			round steel 12 mm		
9.	14	1,600	3					round steel 12 mm		
10.	15	1,500	511		1			round steel 12 mm		
11.	16	1,400	78					round steel 12 mm		
12.	17	1,300	123					round steel 12 mm		
13.	18	1,200	218		1			round steel 12 mm		
14.	19	1,100	5		1			round steel 12 mm		
15.	20	1,000	9		9			round steel 12 mm		

You can create new cutting plan in one of the following ways:

- Entering plan manually
- Entering plan (multiple plans) from Assemblies
- Duplication of existing plan
- Import of multi material parts

Adding a New Empty Plan

To add a new empty cutting plan, first click the Plans tab to open Plans form. Next, click the button in the Data navigator to add a new plan.



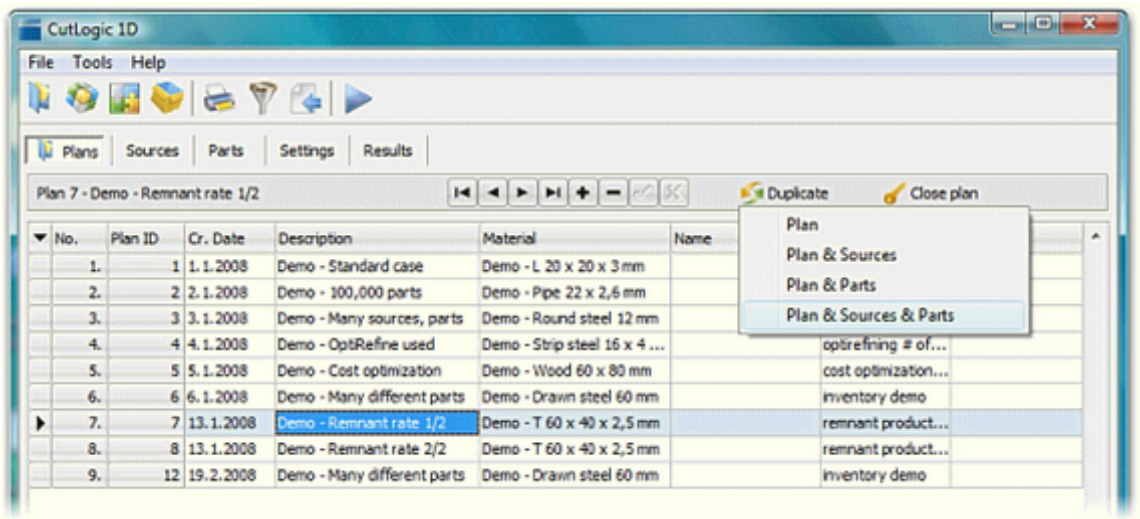
No.	Plan ID	Cr. Date	Description	Material	Name	Note 1	Note 2
1.	1	1.1.2008	Demo - Standard case	Demo - L 20 x 20 x 3 mm		standard cutting...	
2.	2	2.1.2008	Demo - 100,000 parts	Demo - Pipe 22 x 2,6 mm		special cutting c...	
3.	3	3.1.2008	Demo - Many sources, parts	Demo - Round steel 12 mm		special cutting c...	
4.	4	4.1.2008	Demo - OptiRefine used	Demo - Strip steel 16 x 4 mm		optirefining # of ...	
5.	5	5.1.2008	Demo - Cost optimization	Demo - Wood 60 x 80 mm		cost optimization...	
6.	6	6.1.2008	Demo - Many different parts	Demo - Drawn steel 60 mm		inventory demo	
7.	7	13.1.2008	Demo - Remnant rate 1/2	Demo - T 60 x 40 x 2,5 mm		remnant product...	
8.	8	13.1.2008	Demo - Remnant rate 2/2	Demo - T 60 x 40 x 2,5 mm		remnant product...	
* 9.		13.2.2008		Default			

Next, enter "Description" of the plan. Move to the field "Material" and click left mouse button or press [F2] key to open drop-down list showing your Materials in the Inventory. Choose one of them and insert it to the plan. Field "Material" is mandatory. If you do not use Inventory features you can leave this field without editing and "Default" material is set automatically. "Default" material is predefined in the program and can not be deleted from Materials.

NOTE! You can define as many plans as you need for one material. However, one plan may contain only one material!

Duplication of Existing Cutting Plan

You can add new plan by duplicating the existing one. First, activate the plan you want to duplicate by clicking on it. Then click the button [Duplicate] in Control Panel and choose an option from the pick list as is shown in the following picture:


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Plan 7 - Demo - Remnant rate 1/2
Duplicate
Close plan
Plan
Plan & Sources
Plan & Parts
Plan & Sources & Parts
No. Plan ID Cr. Date Description Material Name
1. 1 1.1.2008 Demo - Standard case Demo - L 20 x 20 x 3 mm
2. 2 2.1.2008 Demo - 100,000 parts Demo - Pipe 22 x 2,6 mm
3. 3 3.1.2008 Demo - Many sources, parts Demo - Round steel 12 mm
4. 4 4.1.2008 Demo - OptiRefine used Demo - Strip steel 16 x 4 ... optirefining # of...
5. 5 5.1.2008 Demo - Cost optimization Demo - Wood 60 x 80 mm cost optimization...
6. 6 6.1.2008 Demo - Many different parts Demo - Drawn steel 60 mm inventory demo
7. 7 13.1.2008 Demo - Remnant rate 1/2 Demo - T 60 x 40 x 2,5 mm remnant product...
8. 8 13.1.2008 Demo - Remnant rate 2/2 Demo - T 60 x 40 x 2,5 mm remnant product...
9. 12 19.2.2008 Demo - Many different parts Demo - Drawn steel 60 mm inventory demo

- Choice Plan will copy only related data from Plans tab and also defined parameters from Settings tab of selected plan into a new plan.
- Choice Plan & Sources will copy related data from Plans tab and defined parameters from Settings tab and all sources defined in Sources tab of selected plan into a new plan.
- Choice Plan & Parts will copy related data from Plans tab and defined parameters from Settings tab and all parts defined in Parts tab of selected plan into a new plan.
- Choice Plan & Sources & Parts will copy all related data from selected plan into a new plan.

This feature allows you to copy all section or only selected sections of given plan into new one. It is useful in "Multi plans", where an order consists of more plans with different materials.

Entering Sources for the Plan

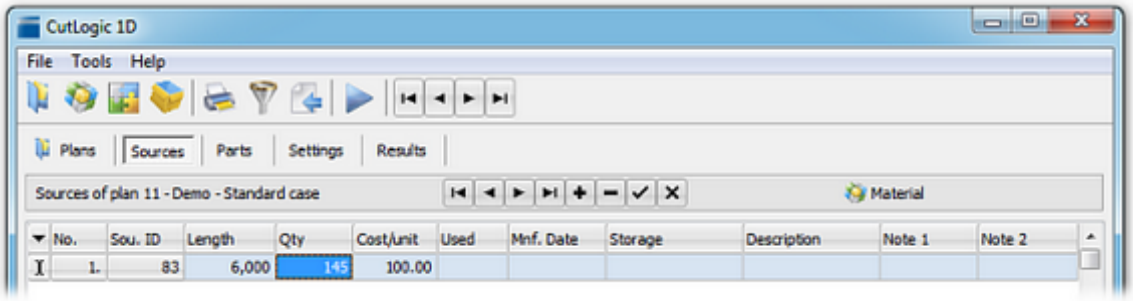
When general information about the plan is entered, you can start to enter the sources, one of mandatory input for the optimization.

You can enter sources in one of the following ways:

- Entering sources directly
- Copying stored or predefined sources from Materials
- Importing sources from external data files

Entering sources directly

Click the Sources tab to open Plan Sources form. To add new cutting source, click the button in the Data navigator.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 11 - Demo - Standard case
Material
No. Sou. ID Length Qty Cost/unit Used Mnf. Date Storage Description Note 1 Note 2
1. 83 6,000 145 100.00

Now you can enter data in the fields "Length", "Qty", "Cost/unit", "Mnf. Date", "Description", "Note 1" and "Note 2". "Length" and "Qty" are mandatory fields. First, enter length of one source to the field "Length". Next, fill in the number of pieces available for cutting to the field "Qty". Fields "Used" and "Storage" are not editable.

TIP! How to use CutLogic 1D for estimation of optimal quantity of sources in the plan? If you know what parts you want to cut, what dimensions of sources are going to be used, but you do not know how many sources of given length you should order, just select "unlimited" value in the field "Qty". Program will automatically find optimal usage of that source during optimization. Consequently, you can order only the material you need for the plan and you don't need to keep material in storage.

Next, you can enter the unit cost of the source to the field "Cost/unit" according to pre-defined Costs format in Program options.

IMPORTANT! You can leave field "Cost/unit" blank – this is not mandatory field for optimization. CutLogic 1Doptimizer is based on cost optimization – it means the optimizer is trying to find "the cheapest" cutting plan (layouts). In the case when "Cost/unit" fields are blank or contain the same value for all sources within given plan – in other words if cost priority is not used – we talk about yield optimization which is a special case of cost optimization. In such case optimizer finds optimal cutting plan with the maximal yield and minimal physical waste. Because of the same cost of all sources it is also the cheapest cutting plan. In case when you set different costs for different sources the optimizer finds the cheapest cutting plan, which isn't necessarily the plan with maximal yield/minimal waste.

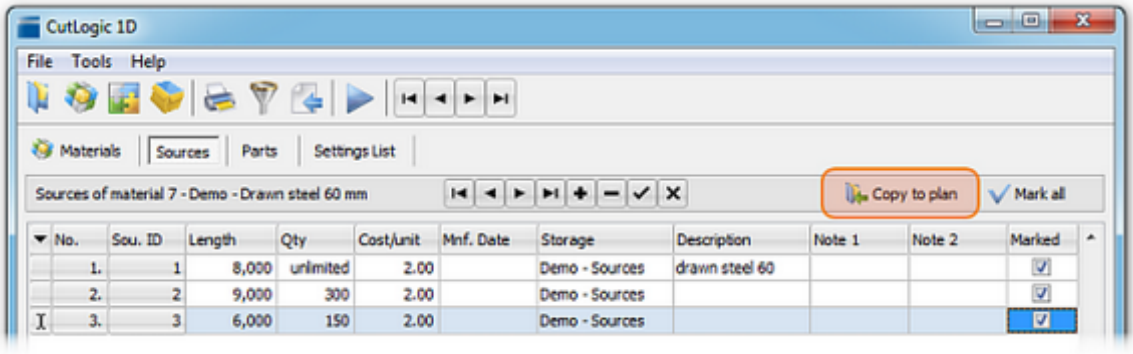
TIP! You don't need to assign the real cost to the "Cost/unit" field. "Cost/unit" field can be also understood and used as a priority – sources with lower cost are used in optimization process with greater priority.

Copying stored or predefined sources from Materials

The second way how to enter the sources to the plan is to load them from Materials.

CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 1 - Demo - Standard case
Material
No. Sou. ID Length Qty Cost/unit Used Mnf. Date Storage Description Note 1 Note 2

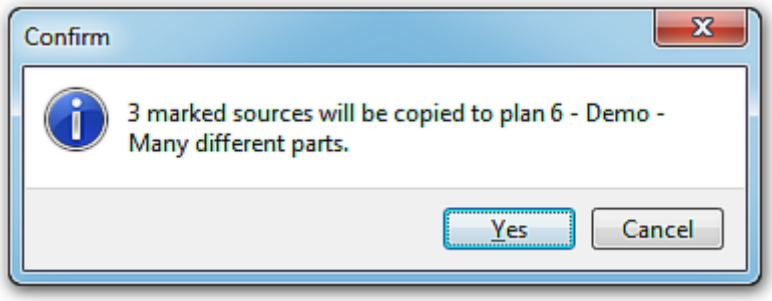
By clicking the button [Material], the Material Sources form with predefined sources opens.


CutLogic 1D
File Tools Help
Materials Sources Parts Settings List
Sources of material 7 - Demo - Drawn steel 60 mm
Copy to plan
Mark all
No. Sou. ID Length Qty Cost/unit Mnf. Date Storage Description Note 1 Note 2 Marked
1. 1 8,000 unlimited 2.00 Demo - Sources drawn steel 60
2. 2 9,000 300 2.00 Demo - Sources
3. 3 6,000 150 2.00 Demo - Sources

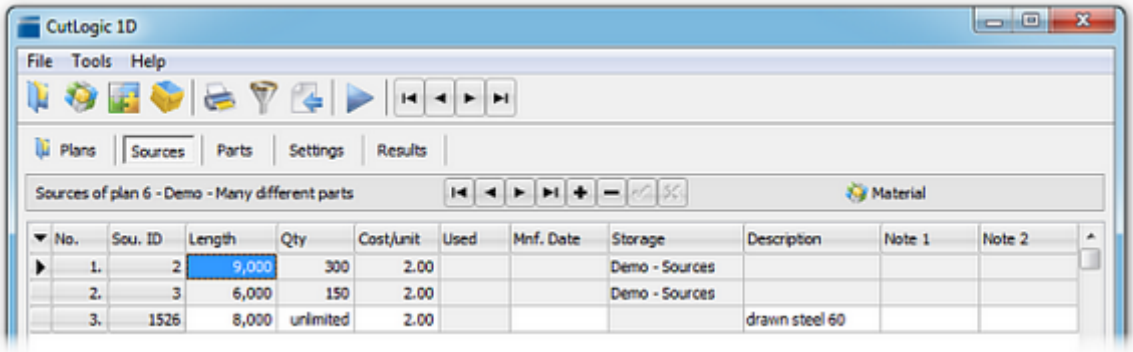
You can mark one or more sources and copy them to the plan by clicking the button [Copy to plan].

TIP! Click the button [Mark all] to mark all available sources.

After clicking the button [Copy to plan] following confirmation form appears:



After clicking the button [Yes] the sources are copied to the plan.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Sources of plan 6 - Demo - Many different parts
Material
No. Sou. ID Length Qty Cost/unit Used Mnf. Date Storage Description Note 1 Note 2
1. 2 9,000 300 2.00 Demo - Sources
2. 3 6,000 150 2.00 Demo - Sources
3. 1526 8,000 unlimited 2.00 drawn steel 60

IMPORTANT! Keep in mind that sources with defined quantity represent real sources of real Inventory and you can not edit them in this form, while sources with "unlimited" quantity represent predefined sources – templates. Such kind of source is virtual one and it can not be stored in Storages so that Storage field is blank. You can edit and change the same fields as in manual mode of entering the sources.

Importing sources from external data files

The third way how to enter the sources to the plan is to import them from the external data files.

It is possible to import sources from any of following structured files: TXT, CSV, MS Excel file, MS Access file, from clipboard or from an external database via connection string definition.

You can import sources from external source by clicking the menu "*File* > *Import*" or by pressing [Ctrl+I] keyboard shortcut. Read more about import in chapter Import.

TIP! It is possible to combine all above mentioned ways of entering the sources, however keep in mind all consequences especially for Inventory management!

Field "Storage" represents physical store where the sources used in the plan are stored. (Applicable only for stored sources loaded from Inventory).
The field "Used" informs about number of sources planned by optimizer to be used for cutting.

Entering Parts for the Plan

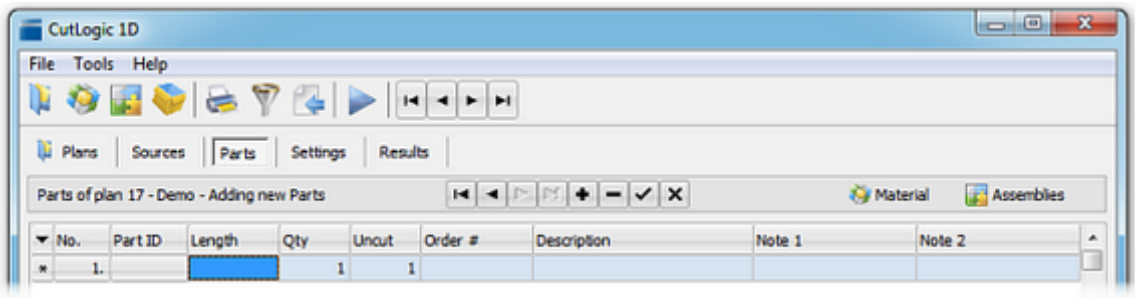
When all sources are entered, you can start to enter parts you want to cut.

You can enter parts in one of the following ways:

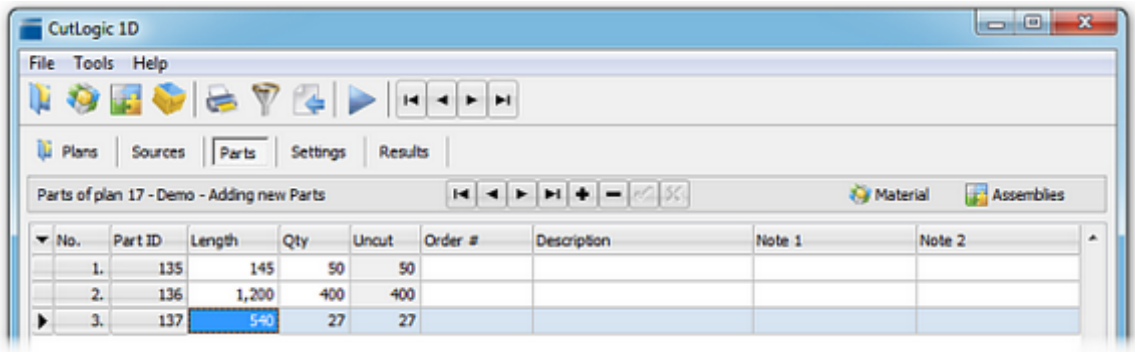
- Entering parts directly
- Copying predefined parts from Materials
- Copying predefined parts from Assemblies
- Importing parts from external data source

Entering parts directly

Click the Parts tab to open Plan Parts form. To add a new cutting part, click the button in the Data navigator.

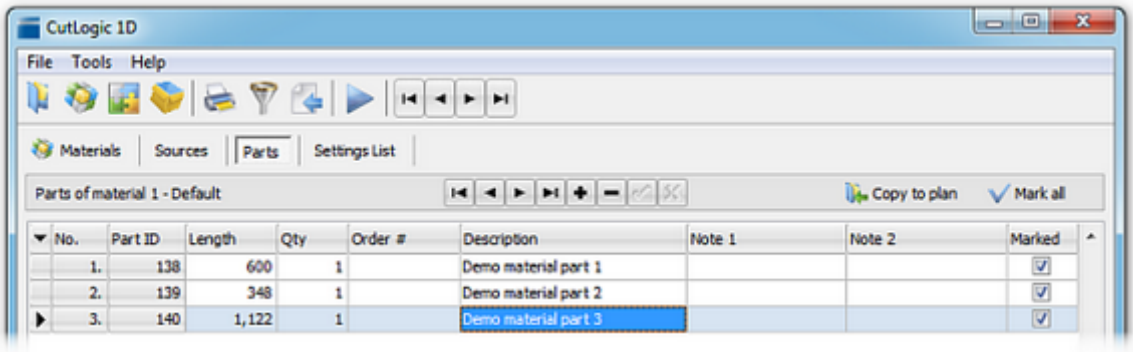

CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 17 - Demo - Adding new Parts
Material Assemblies
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2
1. 1 1

"Length" and "Qty" are mandatory fields. Fill in desired length of parts to the field "Length" according to pre-defined Length format in Options. Fill in desired number of parts you want to cut to the field "Qty". Value from the field "Qty" will be automatically copied to the field "Uncut". This field is used to show uncut parts in case of insufficient sources. Then you can fill in the other fields like "Order #", "Description", "Note 1" and "Note 2". Filling of this field is optional, but it gives you better overview about the parts in the plan.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 17 - Demo - Adding new Parts
Material Assemblies
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2
1. 135 145 50 50
2. 136 1,200 400 400
3. 137 540 27 27

Copying predefined parts from Materials

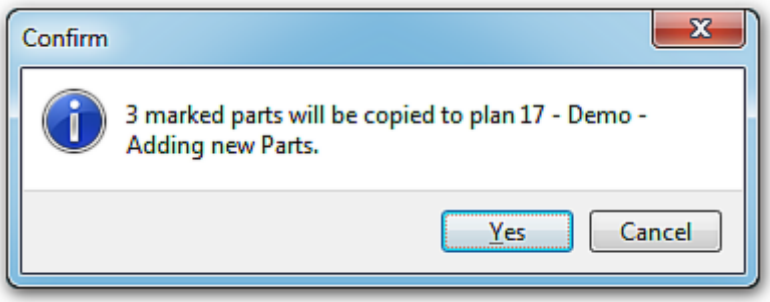
If you often use the parts with the same parameters, you can predefine them in Material Parts. Whenever you need them, you can copy them into the plan.
By clicking the button [Material] , the form Material Parts with predefined parts opens.


CutLogic 1D
File Tools Help
Materials Sources Parts Settings List
Parts of material 1 - Default
Copy to plan
Mark all
No. Part ID Length Qty Order # Description Note 1 Note 2 Marked
1. 138 600 1 Demo material part 1
2. 139 348 1 Demo material part 2
3. 140 1,122 1 Demo material part 3

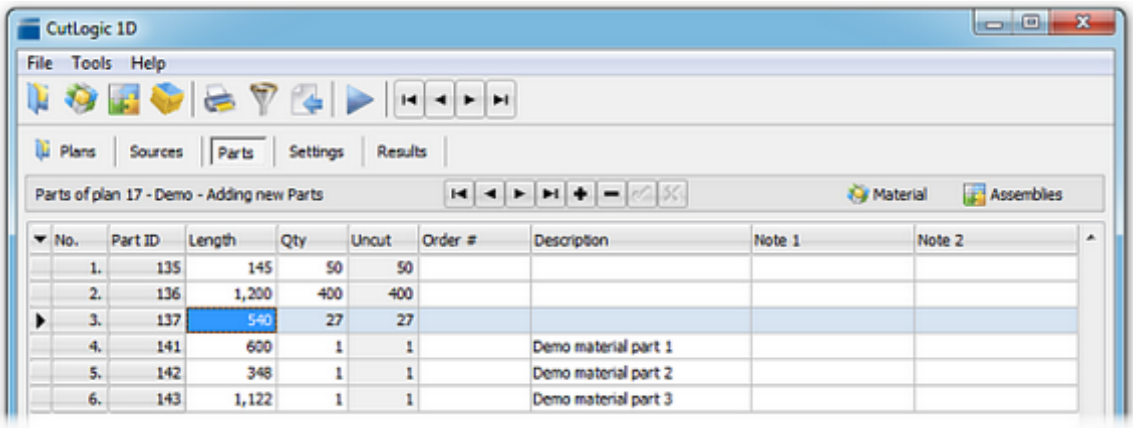
You can mark one or more parts and import them to the plan by clicking the button [Copy to plan].

TIP! Click the button [Mark all] to mark all available parts.

After clicking the button [Copy to plan] following confirmation form appears:



After clicking the button [Yes], parts are copied to the plan.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 17 - Demo - Adding new Parts
Material
Assemblies
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2
1. 135 145 50 50
2. 136 1,200 400 400
3. 137 540 27 27
4. 141 600 1 1 Demo material part 1
5. 142 348 1 1 Demo material part 2
6. 143 1,122 1 1 Demo material part 3

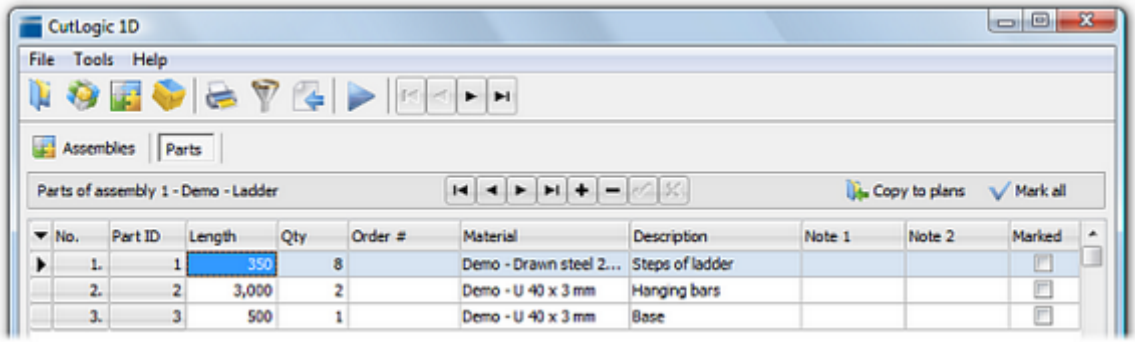
Now you can change and edit fields as you need.

Copying predefined parts from Assemblies

Assemblies allow you to define multipart products in Inventory and to work with them. Parts in Assemblies represent bill of material for given end product. Working with assemblies simplifies preparation work when defining new cutting plan. When preparing a new cutting plan for given material you can copy all Assemblies containing parts made from given material to the plan.

Example:
You are preparing plan for material Demo – U 40x3 mm because your customer ordered 20 ladders from your catalogue.

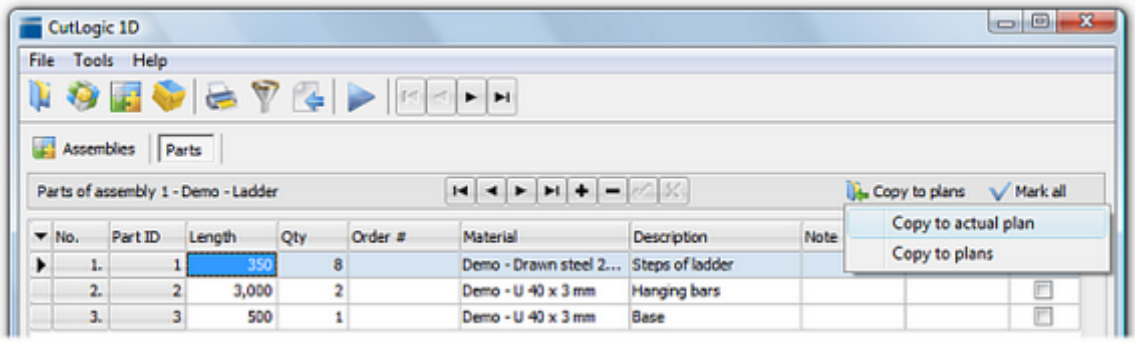
First, have a look at how the parts of Demo-Ladder are defined in the Assemblies:


CutLogic 1D
File Tools Help
Assemblies
Parts
Parts of assembly 1 - Demo - Ladder
Copy to plans
Mark all
No. Part ID Length Qty Order # Material Description Note 1 Note 2 Marked
1. 1 350 8 Demo - Drawn steel 2... Steps of ladder
2. 2 3,000 2 Demo - U 40 x 3 mm Hanging bars
3. 3 500 1 Demo - U 40 x 3 mm Base

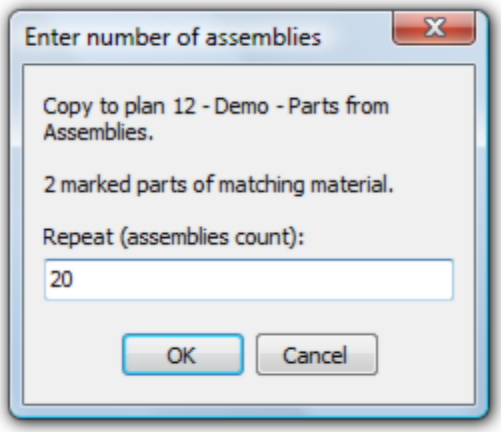
NOTE! Notice that assembly Demo-Ladder contains parts made from different material, so that you have to prepare separate cutting plan for every material in order to cut all needed parts.

Now you can define cutting plan for material Demo – U 40x3 mm and copy related parts to the plan by using Assemblies. Define a new plan and click Parts tab.

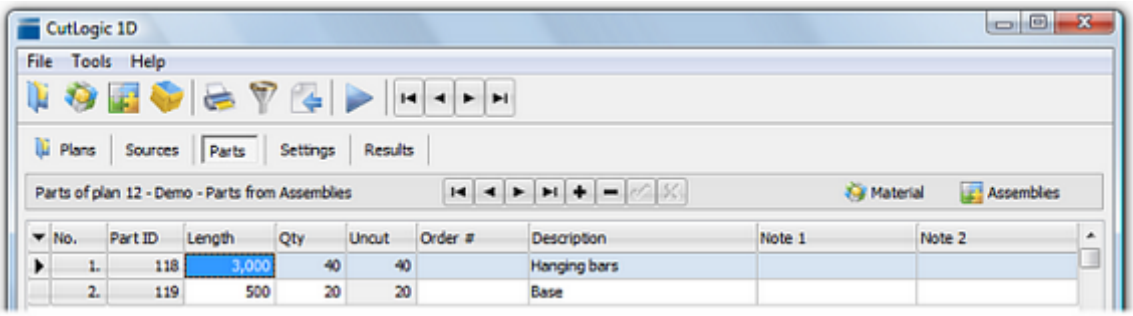
Next click the button [Assemblies] to open Assemblies Parts form. Then click the button [Mark all] to select all parts for copying into the Plans Parts form and click the button [Copy to plans].


CutLogic 1D
File Tools Help
Assemblies
Parts
Parts of assembly 1 - Demo - Ladder
Copy to plans
Mark all
Copy to actual plan
Copy to plans
No. Part ID Length Qty Order # Material Description Note
1. 1 350 8 Demo - Drawn steel 2... Steps of ladder
2. 2 3,000 2 Demo - U 40 x 3 mm Hanging bars
3. 3 500 1 Demo - U 40 x 3 mm Base

Now click [Copy to actual plan] .



Enter number of assemblies – in our demo case we want to cut parts for 20 Ladders - and click the button [OK] .


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 12 - Demo - Parts from Assemblies
Material Assemblies
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2
1. 118 3,000 40 40 Hanging bars
2. 119 500 20 20 Base

NOTE! Notice that only matching parts with the same material as defined in given plan will be copied!

Importing parts from external source of data

The fourth way how to enter the parts to the plan is to import them from the external source.

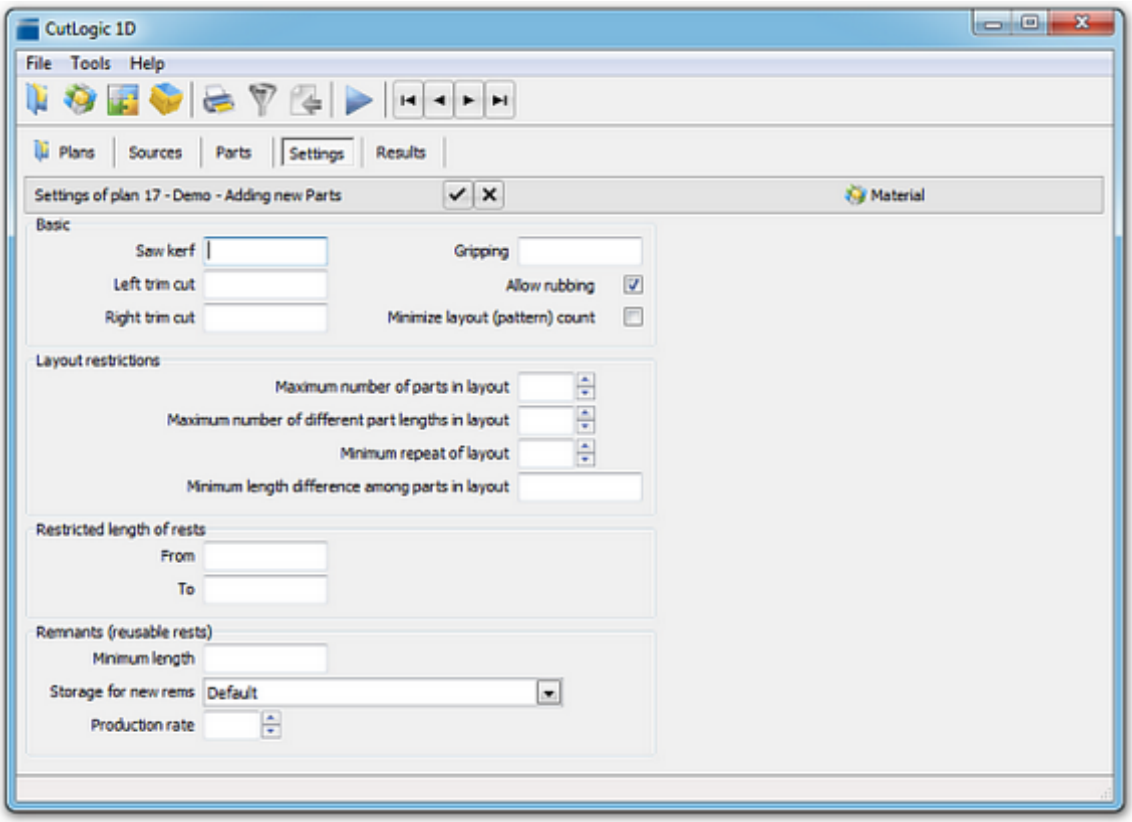
It is possible to import parts from any of following structured files: TXT, CSV, MS Excel file, MS Access file, from clipboard or from an external database via connection string definition.

You can import sources from external source by clicking the menu "*File* > *Import*" or by pressing [Ctrl+I] keyboard shortcut. Read more about import in chapter Import.

TIP! It is possible to combine above mentioned ways of entering the parts, however keep in mind all consequences!

Entering Settings for the Plan

When sources and parts are entered, you can start to define the Settings for the plan. Click the Settings tab to open Plan Setting form.



There are two ways how to define Settings:

- Entering parameters directly
- Copying predefined Settings from Materials

Entering parameters directly

Settings tab allows you to define cutting settings for given plan. Settings are grouped in four categories:

Basic

Saw kerf	Enter if it is necessary to set saw kerf (cut width).
Left trim cut	Enter if it is necessary to trim the source on the left end (damage or deformation).
Right trim cut	Enter if it is necessary to trim the source on the right end (damage or deformation).

Gripping	Enter if it is necessary to grip (hold) end of source. Gripping portion of source can be utilized in case when length of part is the same as length of the rest of source, so no cutting and gripping is needed. For example if Gripping is 23 then rest can be 0, or 23, or greater than 23.
Allow rubbing	When allowed, rest of source can be shorter than cut width (saw kerf) so the last part is not cut but it is only rubbed to required length.
Minimize layout (pattern) count	Enter if it is necessary to minimize number of cutting layouts and overall labor. This feature is interesting in cases, when setting of your cutting machine is too expensive or requires much time. Keep in mind that when you use this option, the yield of your material is lower.

Layout restrictions

Maximum number of parts in layout	Enter if you want to limit total number of parts in one cutting layout.
Maximum number of different part lengths in layout	Enter if you want to limit maximum number of different part lengths in one cutting layout.
Minimum repeat of layout	Optimizer tries to find cutting plan in which each layout is repeated at least as many times as entered value.
Minimum length difference among parts in layout	Enter if you want to set minimum length difference among parts in one cutting layout. Example: Required parts: 5cm, 7cm, 9cm, 11cm, 12cm, 14cm, 18cm and min length = 3cm then following parts could be together in one layout: 5,9,12,18 If min length = 5 cm then following parts could be together in one layout: 5,11,18 or 7,12,18, etc.

Restricted length of rests

From – To	Program tries not to produce rests with length in defined interval From - To. Note: higher value should be equal or lower to the "minimum length of remnant" value.

Remnants (reusable rests)

Minimum length	Function "Close project" will move rests with length greater or equal to remnant minimum length to the storage defined below as remnants. Function "Open project" will delete these remnants from inventory.
Storage for new rems	Function "Close project" will move rests with length greater or equal to remnant minimum length into this storage as remnants. Function "Open project" will delete these remnants from this storage.
Production rate	Set value from 0 to 100. 0 means production of rems will be restricted as much as possible. 100 means production of rems will be preferred as much as possible. Note: weighted production of remnants positively affects the yield and decreases scrap factor.

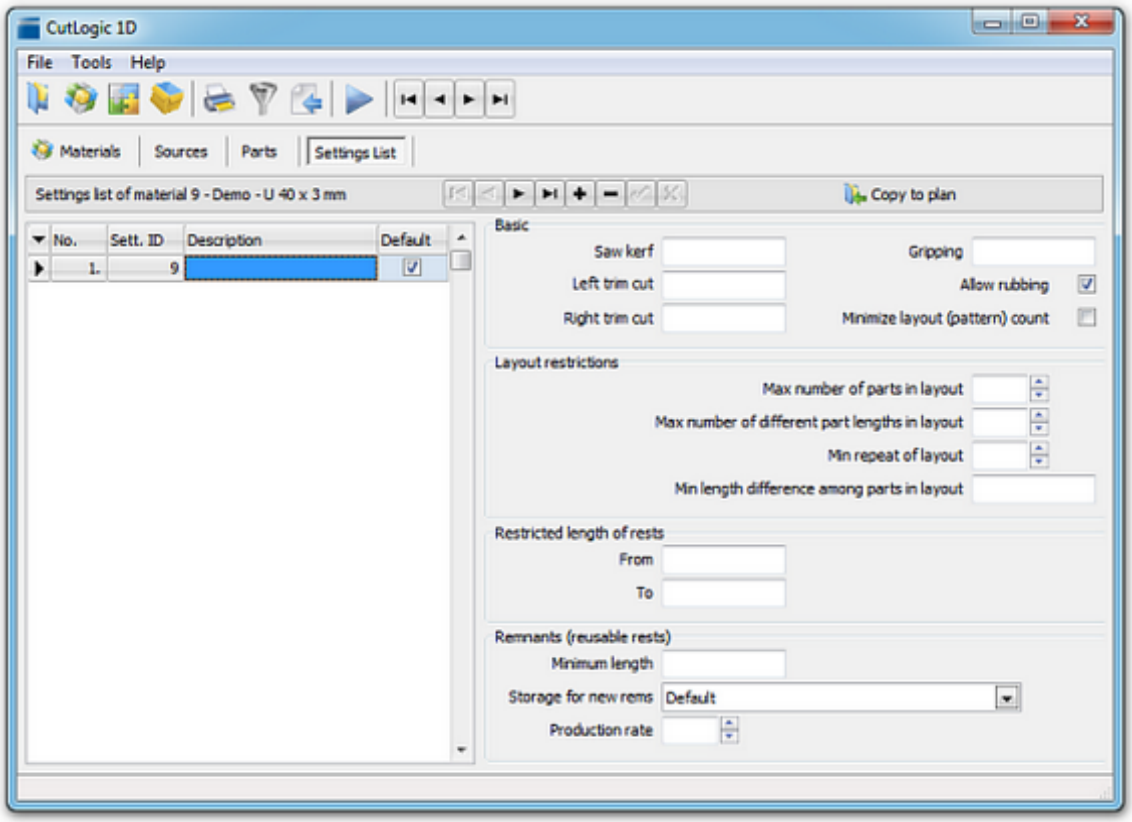
TIP! Set "Maximum number of parts in layout" to 1 to allocate cables (parts) to reels (sources).

NOTE! Some of parameters are available only in Professional Edition or in Enterprise Edition. See chapter Editions Comparison for details.

Copying predefined Settings from Materials

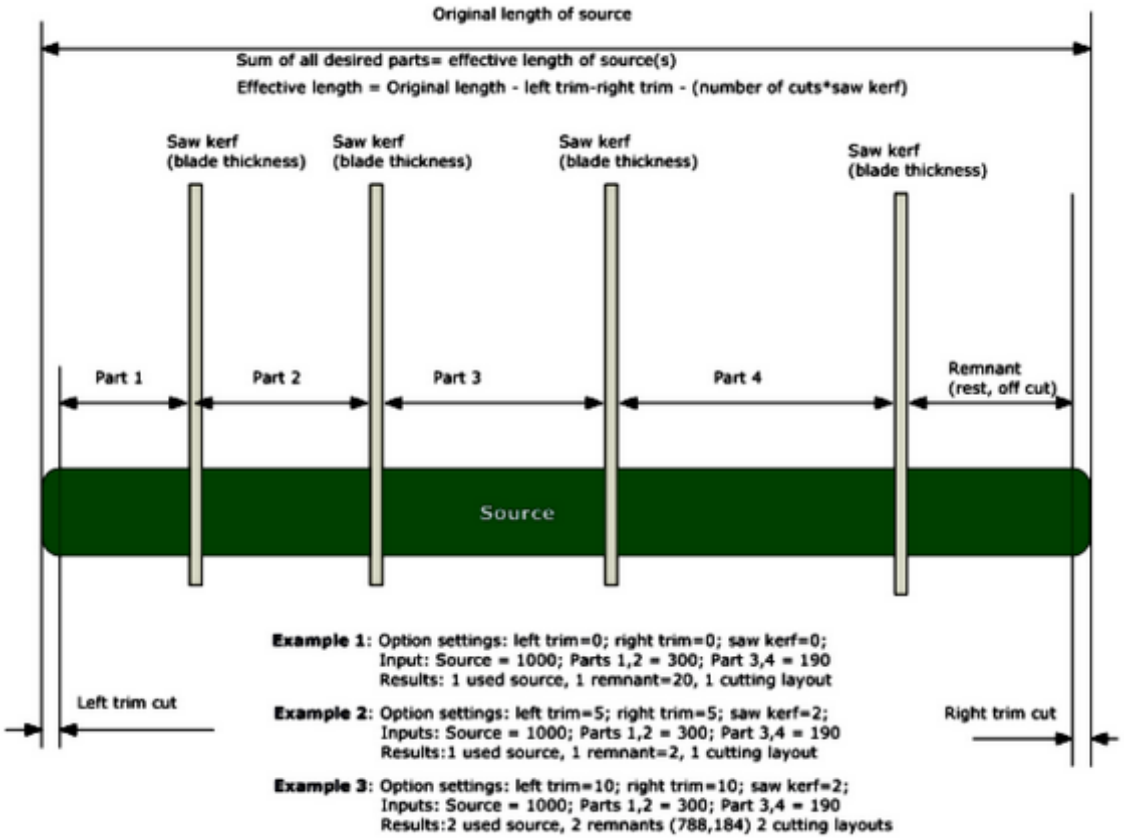
If you often use the same settings for new plans or if you want to setup different settings for different cutting machines, you can predefine them in Material Settings List form. Whenever you need it, you can load them to the plan.

By clicking the button [Material], the Material Settings List form opens.



You can choose settings from Settings List and write them to the plan. Click the desired settings in settings list on the left side of the form and click the button [Copy to plan] to copy this settings to the plan.

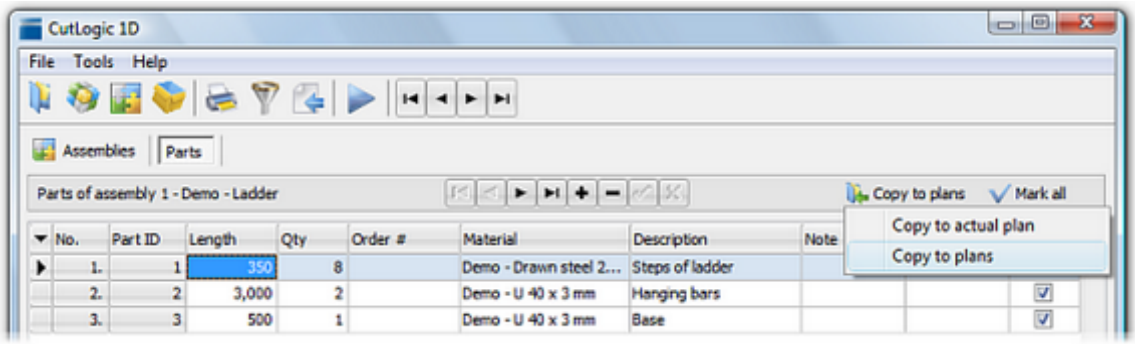
Following drawing shows a graphical explanation of setting parameters and examples of influence of setting parameters on calculation of optimal cutting plan.


Original length of source
Sum of all desired parts= effective length of source(s)
Effective length = Original length - left trim-right trim - (number of cuts*saw kerf)
Saw kerf (blade thickness)
Saw kerf (blade thickness)
Saw kerf (blade thickness)
Saw kerf (blade thickness)
Part 1
Part 2
Part 3
Part 4
Remnant (rest, off cut)
Source
Left trim cut
Right trim cut
Example 1: Option settings: left trim=0; right trim=0; saw kerf=0;
Input: Source = 1000; Parts 1,2 = 300; Part 3,4 = 190
Results: 1 used source, 1 remnant=20, 1 cutting layout
Example 2: Option settings: left trim=5; right trim=5; saw kerf=2;
Inputs: Source = 1000; Parts 1,2 = 300; Part 3,4 = 190
Results:1 used source, 1 remnant=2, 1 cutting layout
Example 3: Option settings: left trim=10; right trim=10; saw kerf=2;
Inputs: Source = 1000; Parts 1,2 = 300; Part 3,4 = 190
Results:2 used source, 2 remnants (788,184) 2 cutting layouts

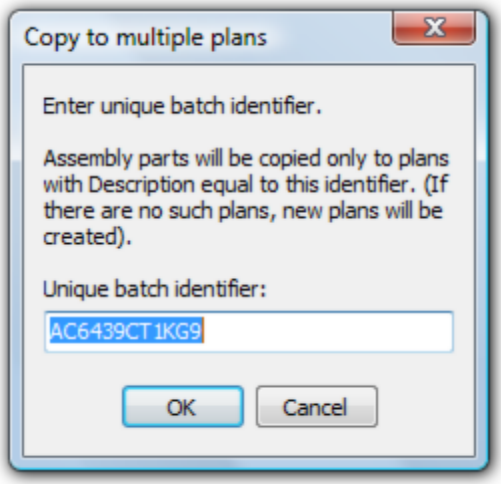
Entering Multiple Plans from an Assembly

Entering Multiple Plans from an assembly is a very useful feature decreasing your effort in the moment when you need to prepare all plans for all materials defined in one assembly. It allows you to prepare all plans in one turn.

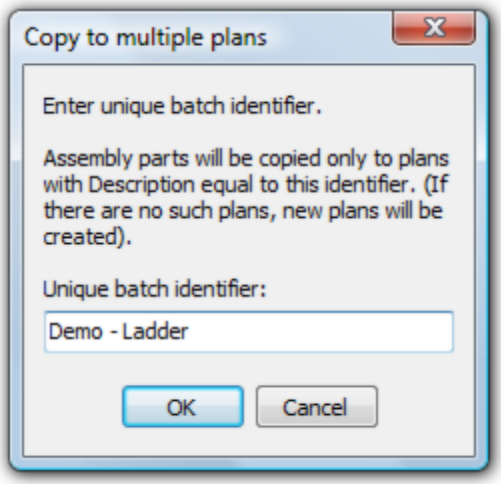
First, select assembly you need to prepare multi plans for.


CutLogic 1D
File Tools Help
Assemblies
Parts
Parts of assembly 1 - Demo - Ladder
Copy to plans
Mark all
Copy to actual plan
Copy to plans
No. Part ID Length Qty Order # Material Description Note
1. 1 350 8 Demo - Drawn steel 2... Steps of ladder
2. 2 3,000 2 Demo - U 40 x 3 mm Hanging bars
3. 3 500 1 Demo - U 40 x 3 mm Base

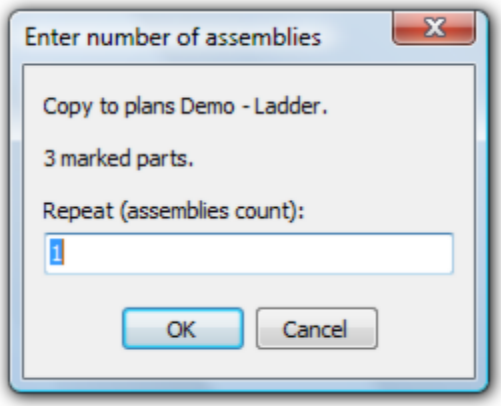
Next click [Copy to plans] button and select [Copy to plans] .


Copy to multiple plans
Enter unique batch identifier.
Assembly parts will be copied only to plans with Description equal to this identifier. (If there are no such plans, new plans will be created).
Unique batch identifier:
AC6439CT1KG9
OK
Cancel

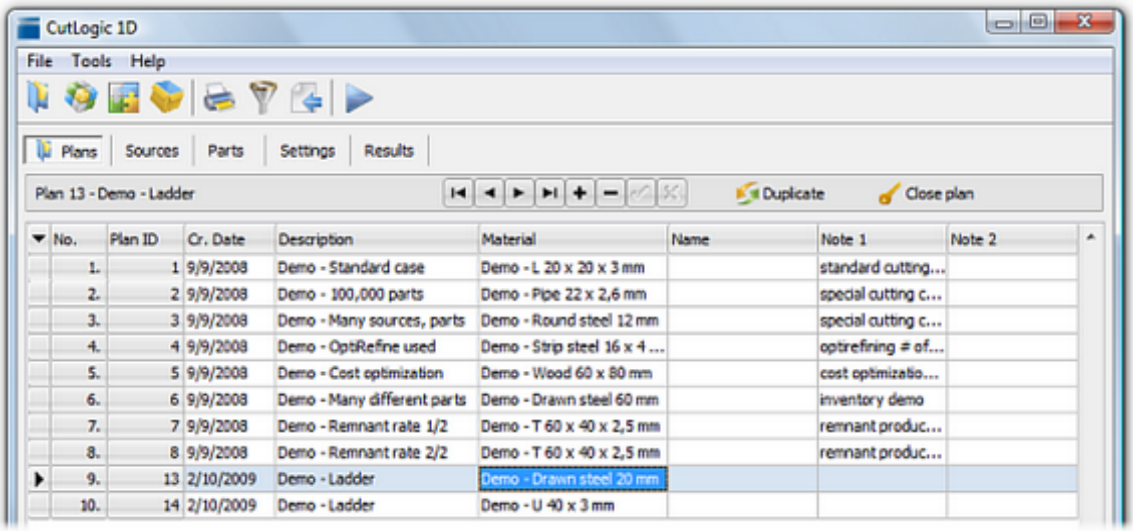
Unique batch identifier is automatically generated. You can use this one or rename the batch as you need.

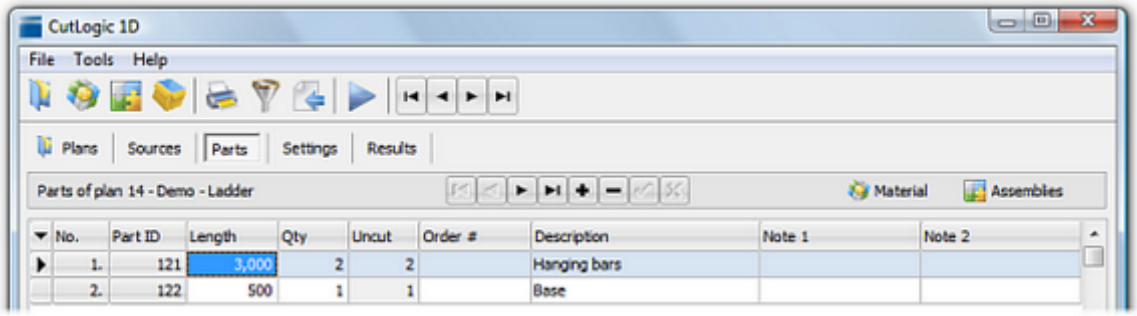

Copy to multiple plans
Enter unique batch identifier.
Assembly parts will be copied only to plans with Description equal to this identifier. (If there are no such plans, new plans will be created).
Unique batch identifier:
Demo - Ladder
OK
Cancel

Now click [OK] button.



TIP! You can use one Unique batch identifier for as many Assemblies as you need. When creating Multi-material plan for next Assembly simply use the same Unique batch identifier as for the first Assembly. This approach leads to better yield and better labor organization.

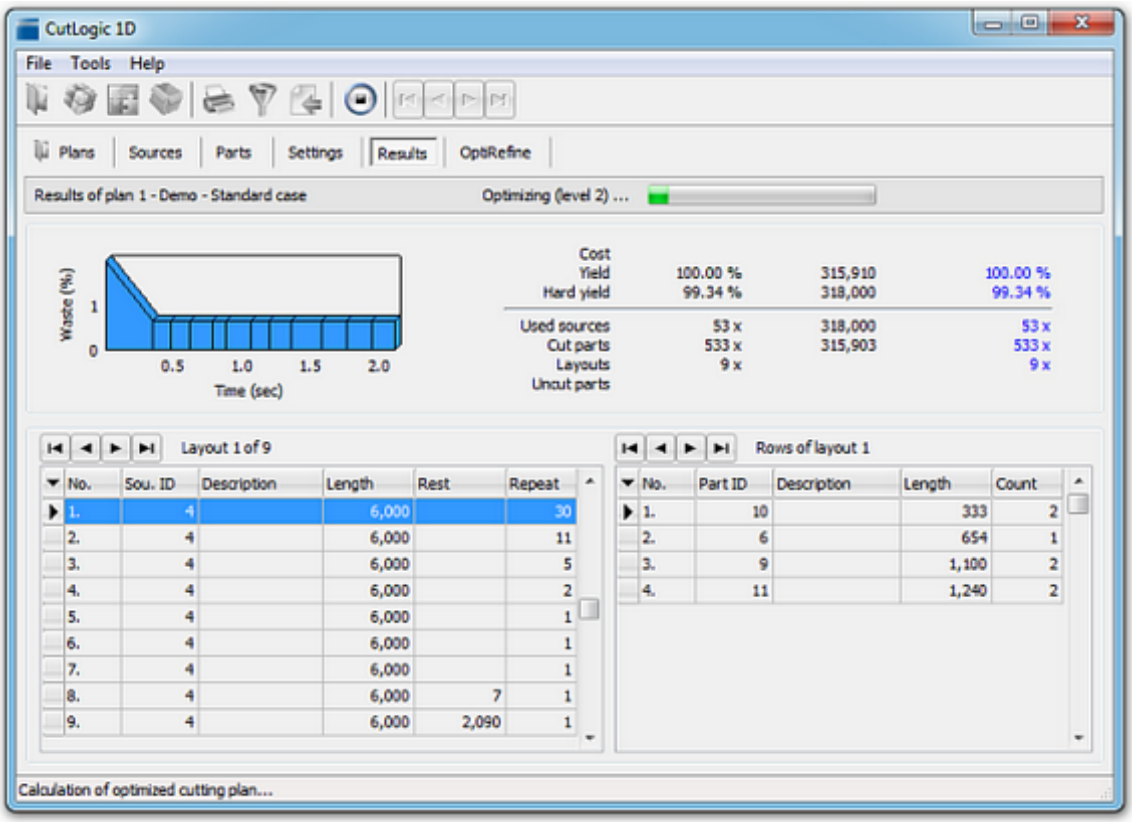

CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Plan 13 - Demo - Ladder
Duplicate
Close plan
No. Plan ID Cr. Date Description Material Name Note 1 Note 2
1. 1 9/9/2008 Demo - Standard case Demo - L 20 x 20 x 3 mm standard cutting...
2. 2 9/9/2008 Demo - 100,000 parts Demo - Pipe 22 x 2,6 mm special cutting c...
3. 3 9/9/2008 Demo - Many sources, parts Demo - Round steel 12 mm special cutting c...
4. 4 9/9/2008 Demo - OptiRefine used Demo - Strip steel 16 x 4 ... optirefining # of...
5. 5 9/9/2008 Demo - Cost optimization Demo - Wood 60 x 80 mm cost optimizatio...
6. 6 9/9/2008 Demo - Many different parts Demo - Drawn steel 60 mm inventory demo
7. 7 9/9/2008 Demo - Remnant rate 1/2 Demo - T 60 x 40 x 2,5 mm remnant produc...
8. 8 9/9/2008 Demo - Remnant rate 2/2 Demo - T 60 x 40 x 2,5 mm remnant produc...
9. 13 2/10/2009 Demo - Ladder Demo - Drawn steel 20 mm
10. 14 2/10/2009 Demo - Ladder Demo - U 40 x 3 mm


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 14 - Demo - Ladder
Material Assemblies
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2
1. 121 3,000 2 2 Hanging bars
2. 122 500 1 1 Base

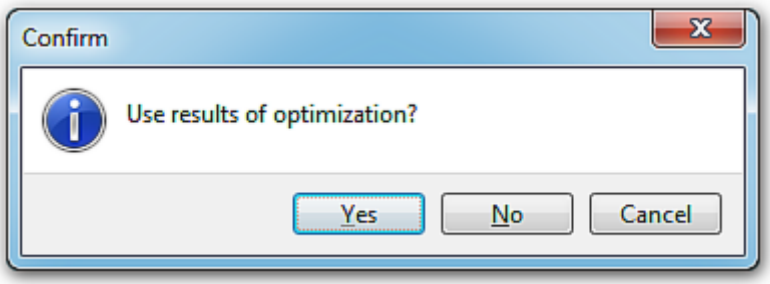
Running Optimization

When all the information needed for the plan is defined (sources, parts, settings), you can start to perform the optimization of cutting layouts.

To start calculation of cutting layouts for the current plan, click the button in Main Toolbar. You can also run optimization directly by pressing keyboard shortcut [F3] or by selecting *"File > Start Optimization"* from the menu. You don't have to switch to Results form, the program does it automatically. During the optimization, you can watch its progress and the best results which are achieved.

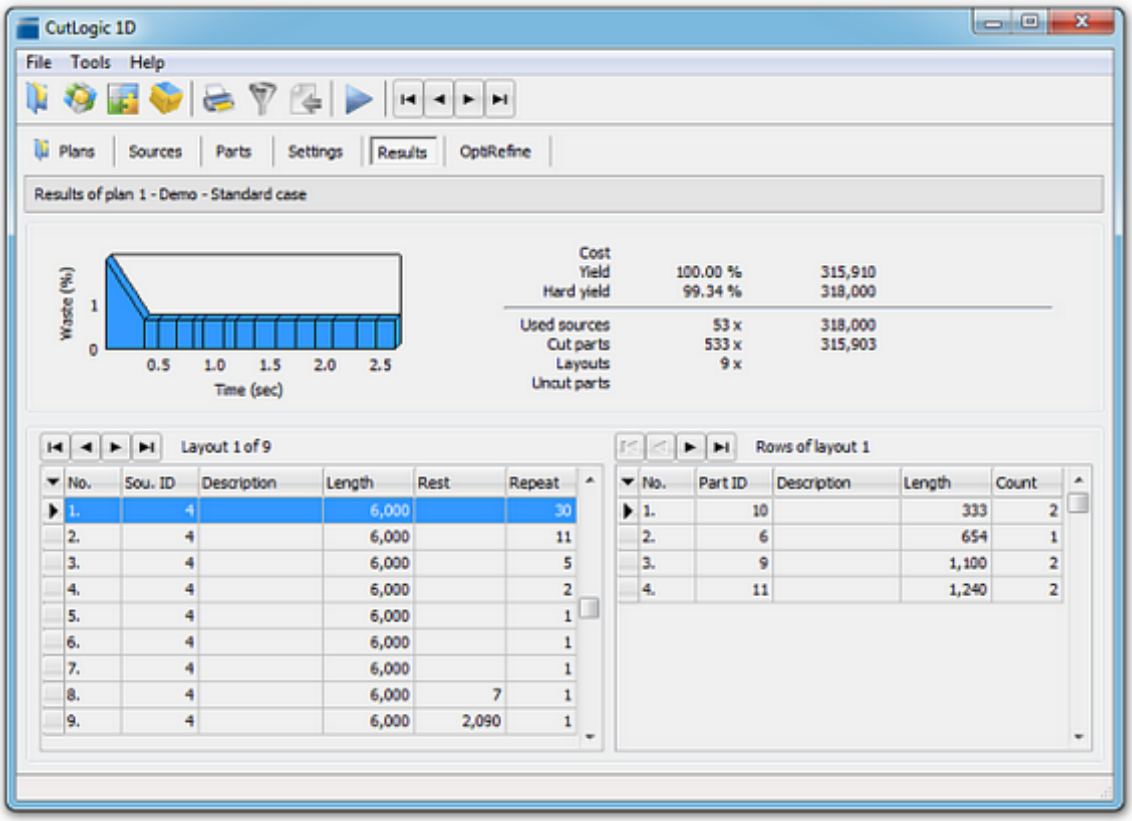

CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results OptiRefine
Results of plan 1 - Demo - Standard case
Optimizing (level 2) ...
Waste (%)
Time (sec)
Cost
Yield 100.00 % 315,910 100.00 %
Hard yield 99.34 % 318,000 99.34 %
Used sources 53 x 318,000 53 x
Cut parts 533 x 315,903 533 x
Layouts 9 x 9 x
Uncut parts
Layout 1 of 9
Rows of layout 1
Calculation of optimized cutting plan...

You can stop optimization process at any time by clicking the button in the Main Toolbar or by pressing keyboard shortcut [Esc]. In such case following confirmation dialog appears:



If you click the button [Yes], program will stop the optimization and the values will be saved in the plan. Previous results will be overwritten by values which were found in the moment the optimization process was interrupted. If you click the button [No], the optimization will stop and previous results will be left without any change. Values which were found during this last optimization will be ignored. If you click the button [Cancel], the optimization will continue.

When optimization is finished, the best cutting layouts will be automatically entered to the plan. The cutting layouts which were saved the last are always stored for next potential use (additional printing of reports, statistics, etc.)



No.	Sou. ID	Description	Length	Rest	Repeat
1.	4		6,000		30
2.	4		6,000		11
3.	4		6,000		5
4.	4		6,000		2
5.	4		6,000		1
6.	4		6,000		1
7.	4		6,000		1
8.	4		6,000	7	1
9.	4		6,000	2,090	1

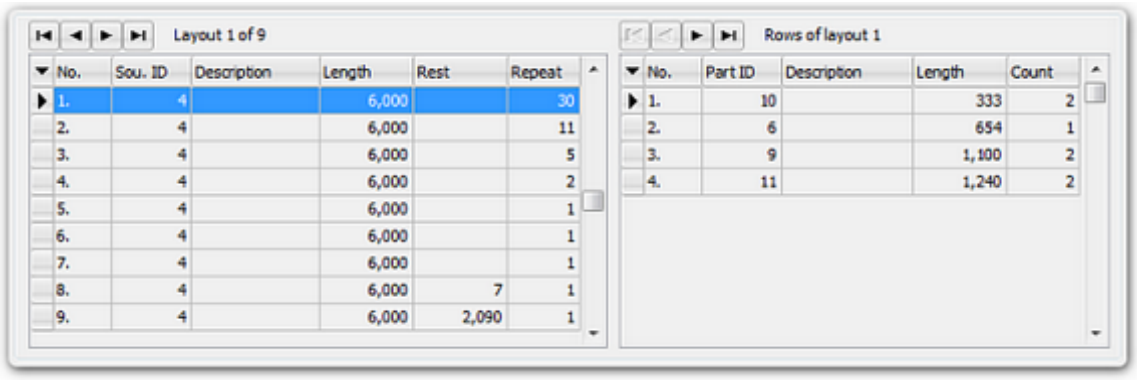
No.	Part ID	Description	Length	Count
1.	10		333	2
2.	6		654	1
3.	9		1,100	2
4.	11		1,240	2

TIP! When you choose particular plan in Plans form and you click the Results tab, you can immediately go over cutting layouts and summary of data which were saved the last.

TIP! If the achieved results fulfill your needs and the optimization is not finished, you can stop it and use these results in the plan.

Layouts

Following data grid shows the cutting layouts which were calculated by the program and user is immediately able to see their overview.

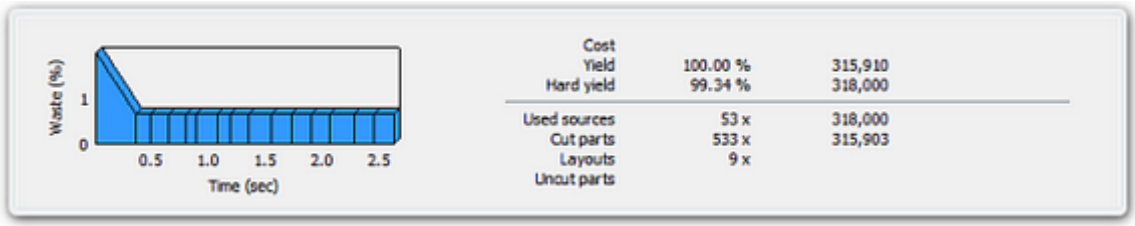


No.	Sou. ID	Description	Length	Rest	Repeat
1.	4		6,000		30
2.	4		6,000		11
3.	4		6,000		5
4.	4		6,000		2
5.	4		6,000		1
6.	4		6,000		1
7.	4		6,000		1
8.	4		6,000	7	1
9.	4		6,000	2,090	1

No.	Part ID	Description	Length	Count
1.	10		333	2
2.	6		654	1
3.	9		1,100	2
4.	11		1,240	2

Summary

Here is complete information about the progress of calculation and currently achieved values of an active project (Cost, Yield, Hard yield, Used sources, Cut parts, Layouts, Uncut parts).



Column 1	Column 2	Column 3
Cost	-	Overall cost of the project.
Yield	Achieved utilization in percentage taking into account produced remnants. [Sum length of used parts / (Sum length of used sources - Sum length of produced remnants)]	Absolute value of achieved utilization taking into account produced remnants. [Sum length of used sources - Sum length of produced remnants]
Hard yield	Achieved utilization in percentage not taking into account produced remnants. [Sum length of used parts / Sum length of used sources]	Absolute value of achieved utilization not taking into account produced remnants. [Sum length of used sources]
Used sources	Number of sources used in calculated cutting plan.	[Sum length of used sources]
Cut parts	Number of parts used in calculated cutting plan.	[Sum length of used parts]
Layouts	Number of layouts of calculated cutting plan.	-
Uncut parts	Number of uncut parts (not used parts) in calculated cutting plan.	[Sum length of uncut parts]

Refining Optimization

What is it?

CutLogic 1D contains very unique OptiRefine module providing an intelligent optimization refinement and re-optimization based on different priorities. As mentioned above, CutLogic 1D optimizer is based on cost optimization, in other words cost is the major priority for optimization. However, in some situations you may have different priority than the cost or you may have more priorities simultaneously. For example, imagine cutting case where cost of material is relatively low but cost of preparation phase for new cutting layout is relatively high. In such case the priority is to find solutions with minimal numbers of cutting layouts in parallel with minimal waste.

During optimization, the program identifies hundreds of possible solutions and chooses the best one. This solution, however, might not suit you and your requirements. With help of OptiRefine you can directly find the right one.
Priorities of optimization and their relations create such large number of combinations and mutual continuities, that the only way to find the most suitable solution is to use OptiRefine.
OptiRefine is based on Fuzzy Logic and together with the optimization module which uses Genetic Algorithms makes of CutLogic 1D the most advanced and progressive application built on the two of three main techniques of modern Artificial Intelligence.

What is it for?

During the optimization the program identifies a set of possible solutions and chooses the one which fulfills these requirements (classified according to importance):

- Minimal count of unused cut-to parts
- Minimal total price of used cut-from sources
- Maximal utilization
- Maximal count of used cut-from sources (decreases the number of shorter sources, reusable off cuts from previous plans, etc.)
- Maximal length of the last rest (transfer of waste to the last rest, which can be used in the next plan)
- Minimal number of cutting layouts

Let's imagine the solutions of cutting plan according the following table:

	Yield	No. of used sources	No. of cutting layouts
Solution 1	99.7916%	511	35
Solution 2	99.7801%	510	12
Solution 3	99.1446%	512	6
Solution 4	99.3940%	1207	33
Solution 5	99.6380%	840	20

CutLogic 1D automatically chooses the solution No. 1, because of the best yield result.

Better for you might be, however, the solution No. 2 which has a little bit lower yield, but less cutting layouts. This means lower labor expenses. Solution No. 3 has small number of cutting layouts, but yield is too low.
You can also prefer solution No. 4, which has low yield and a large amount of cutting layouts, but it includes the highest number of used sources. It means that you get rid of the remnants from previous plans.

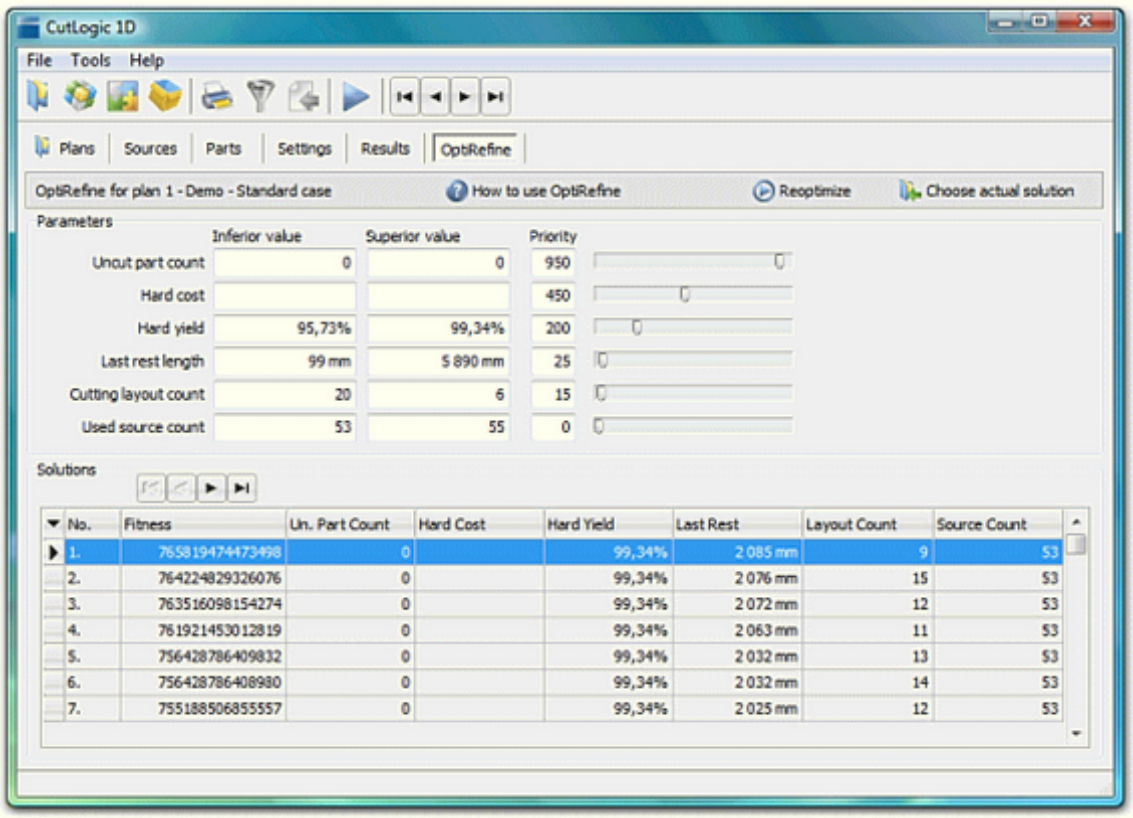
NOTE! Another choice how to use the remnants sources preferable, is to give them lower price per length unit.

Or maybe you will choose solution No. 5 - although its all three values are not the best, each one of them is good enough.
Whichever mix of preferences, you can formulate it simply by changing priorities and watching the list of solutions sorted by their fitness, which is generated online with every change in priorities you do.

TIP! OptiRefine enables to choose any solution in the most convenient and accurate way.

How to use it?

After the optimization finishes, new tab OptiRefine is added to the Plans.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results OptiRefine
OptiRefine for plan 1 - Demo - Standard case
How to use OptiRefine
Reoptimize
Choose actual solution
Parameters
Inferior value
Superior value
Priority
Uncut part count 0 0 950
Hard cost 450
Hard yield 95,73% 99,34% 200
Last rest length 99 mm 5 890 mm 25
Cutting layout count 20 6 15
Used source count 53 55 0
Solutions
No. Fitness Un. Part Count Hard Cost Hard Yield Last Rest Layout Count Source Count
1. 765819474473498 0 99,34% 2 085 mm 9 53
2. 764224829326076 0 99,34% 2 076 mm 15 53
3. 763516098154274 0 99,34% 2 072 mm 12 53
4. 761921453012819 0 99,34% 2 063 mm 11 53
5. 756428786409832 0 99,34% 2 032 mm 13 53
6. 756428786408980 0 99,34% 2 032 mm 14 53
7. 755188506855557 0 99,34% 2 025 mm 12 53

OptiRefine consists of a table of solutions and optimization priorities. You can survey possible solutions in the table of solutions. A click on the title of the column will classify the list according to the given column. With the click on the [Choose actual solution]

button, you will choose the current solution so that the final cutting plan will be equal to this solution.

There are several possibilities of application in the module of OptiRefine:

You can manually find the best solution in the table of solutions (button [Choose actual solution] appoints the found solution)

You can change given priorities and view the changes in the table of solutions online. What is more, you can change the marginal values ("Superior Value" and "Inferior Value") for individual optimization priorities. (button [Choose actual solution] appoints the found solution)

You can even set the optimization priorities and start the re-optimization process by clicking the button [Reoptimize]. So you can get the values which will precisely fulfill your intentions. After finishing the re-optimization, you can either accept the found solution or find another one by using one of three OptiRefine methods.

Examples of using

Example 1:

You want the number of cutting layouts to be lower than 21, the lower the better:
For "Cutting layout count" set "Inferior value" at 21, "Superior value" at 1 and "Priority" at 500. If there isn't a suitable solution in the Cutting plans, you can start the re-optimization with a click on the button [Reoptimize].

Example 2:

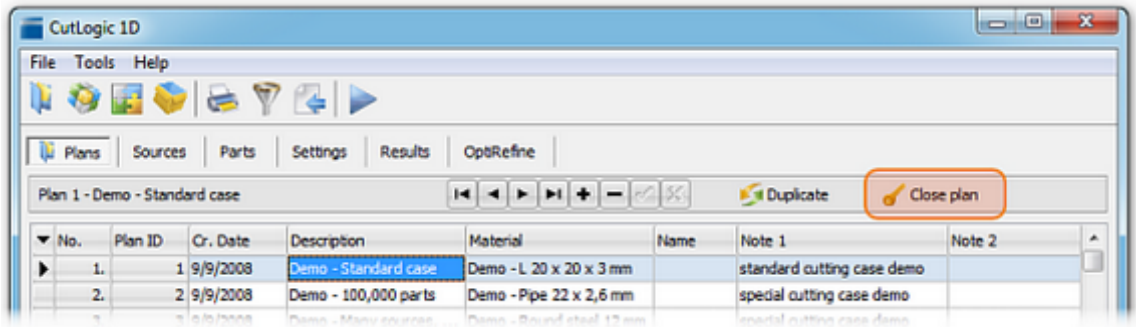
You want the number of cutting layouts to be lower than 21 and it doesn't matter how small this number will be:
For "Cutting layout count" set "Inferior value" at 21, "Superior value" at 20 and "Priority" at 500. If there isn't a suitable solution in the Cutting plans, you can start the re-optimization with a click on the button [Reoptimize].

Example 3:

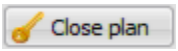
You want to find a good trade-off for cost, sufficient low layout count, and number of used sources:
For "Used source count" set "Priority" at value little bit less than "Priority" of "Cost".
For "Cutting layout count" set "Priority" at value little bit less than "Priority" of "Cost".
Watch solutions in upper lines in Cutting plans, and slightly change priorities to refine your search.
If there isn't a suitable solution in the Cutting plans, you can start the re-optimization with a click on the button [Reoptimize].

Opening and Closing the Plan

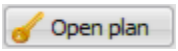
It is possible to close already optimized and finished plans and disable their unwanted modification. When sources of materials used in plans are stored sources registered in the Inventory, by closing the plans used sources will be counted off the Inventory and their count will be automatically set to real values. In case of need, it is possible to re-open plans and modify them.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results OptiRefine
Plan 1 - Demo - Standard case
Duplicate
Close plan
No. Plan ID Cr. Date Description Material Name Note 1 Note 2
1. 1 9/9/2008 Demo - Standard case Demo - L 20 x 20 x 3 mm standard cutting case demo
2. 2 9/9/2008 Demo - 100,000 parts Demo - Pipe 22 x 2,6 mm special cutting case demo

To close / open plans click the button [Close plan] / [Open plan] in Plans form. Opening and closing of plans is described as follows:



Locks the plan so it is impossible to modify it. When sources of materials used in the plan are registered in Inventory, the sources used in the plan are automatically removed from dedicated Material and Storage. Reusable remnants are added to dedicated Materials and Storage as new sources. The length of reusable remnants is set in Settings of plan.



Opens the plan so it is possible to modify it. By opening the plan the changes (made when the plan was closed) are restored to its original state. Source levels are readjusted according to real state before closing of the plan and reusable remnants added to Sources are removed.

Reports

General

Reports is an important part of the program, where you can print or preview any data, such as cutting layouts, lists, labels, etc. displayed in printable format. It is possible to choose from predefined reports, or you can create new ones (customized data views, statistics, etc.).

Predefined reports

Following list represents predefined reports divided into four groups according to active Master View (Plans, Materials, Assemblies or Storages).

Plans

Cutting Layout Part Labels	Labels for cutting layout parts of current or all plans.
Cutting Layout Remnant Labels	Labels for cutting layout remnants of current or all plans.
Cutting Layouts	Optimized cutting layouts for current or all plans.
Cutting Layouts [compact]	Optimized cutting layouts for current or all plans shown in compact form.
Plan Part Labels	Labels for current or all parts of current plan.
Plan Parts	List of parts for current or all plans.
Plan Sources	List of sources for current or all plans.
Plans	List of plans.
Plans [detailed]	List of plans in detailed form.

Materials

Material Parts	List of parts for current or all materials.
Material Source Labels	Labels for current or all sources of actual material.
Material Sources	List of sources for current or all materials.
Material Sources [grouped by storages]	List of sources for current or all materials grouped by storages.
Materials	List of materials.

Assemblies

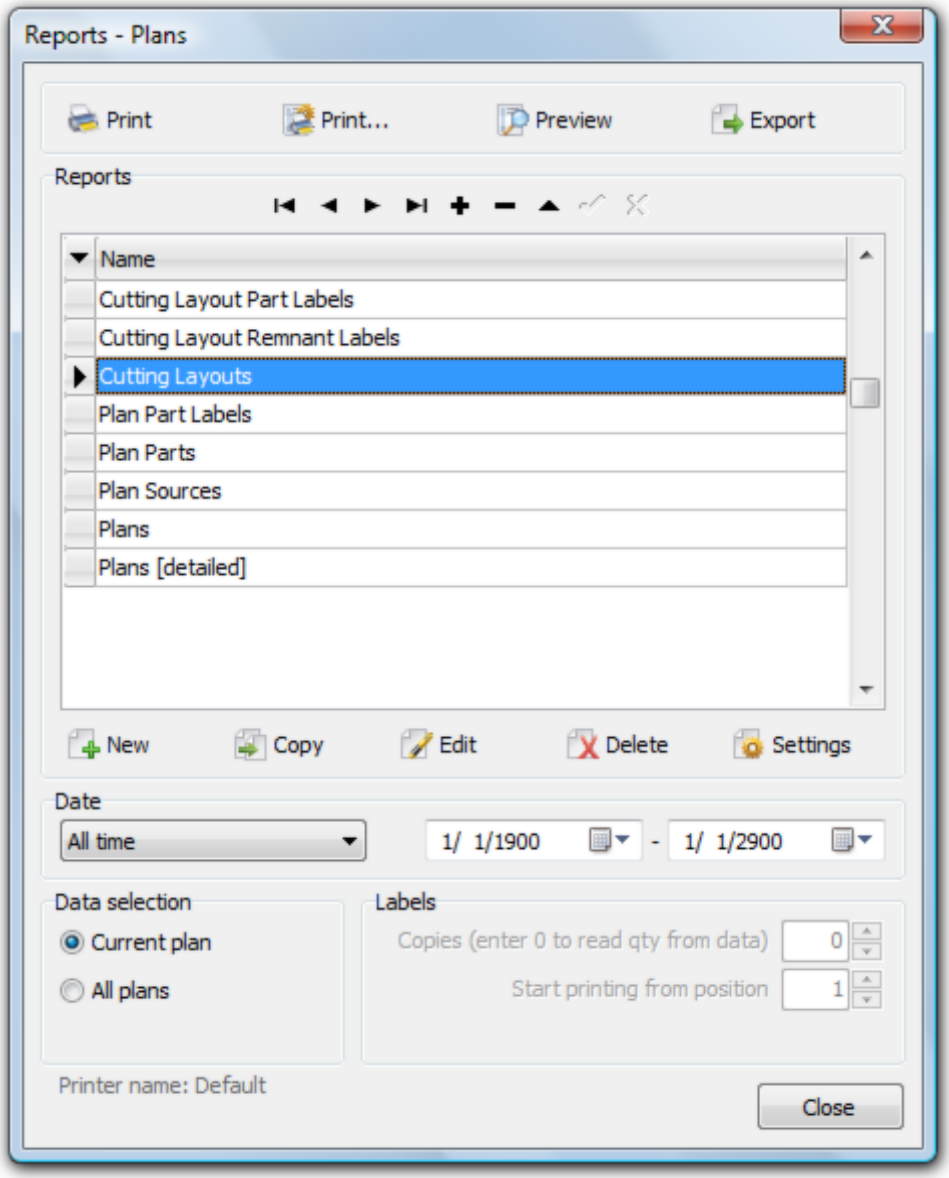
Assemblies	List of assemblies.
Assembly Parts	List of parts for current or all assemblies.

Storages

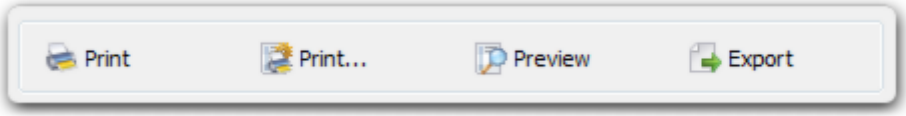
Storage Source Labels	Labels for current or all sources of actual storage.
Storage Sources	List of sources for current or all storages.
Storage Sources [grouped by materials]	List of sources for current or all storages grouped by materials.
Storages	List of storages.

The Reports Window

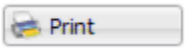
To work with Reports, click the button on the Main Toolbar or select the menu item "*File* > *Reports*" or use [Ctrl+P] keyboard shortcut.



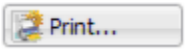
Main bar



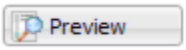
The Main bar is a collection of four speed buttons providing quick access to commonly used commands.



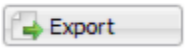
Immediately prints selected report at chosen printer (assigned to current report and/or current user).



Prints selected report at chosen printer. Print dialog, where it is possible to set additional printing properties (select printer, number of copies, print mode, etc.) will be shown before printing of report.



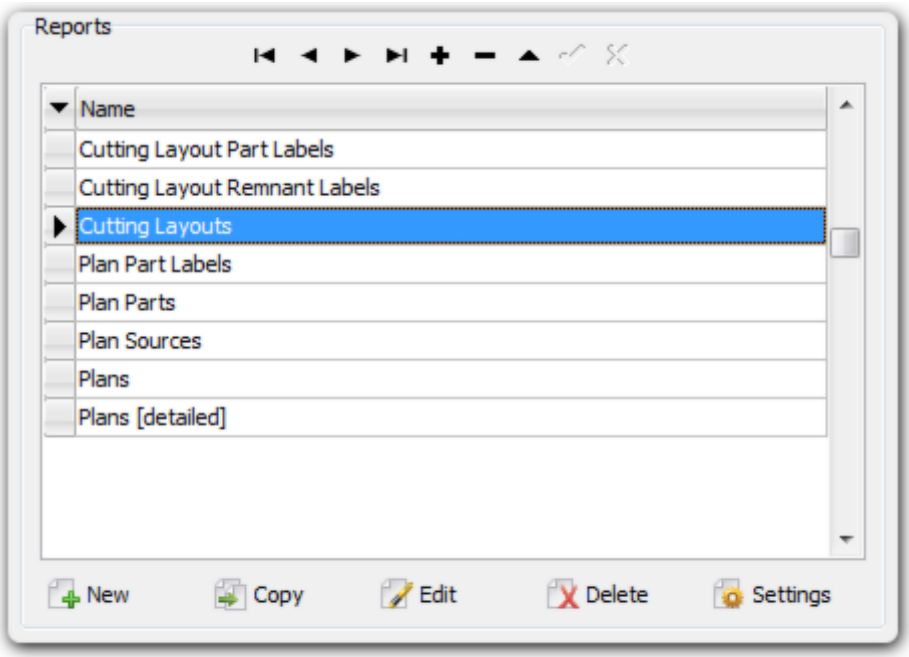
Shows preview of selected report.



Exports selected report (data) to CSV file, Text file, Excel table, HTML file, PDF file, RTF file, XML Excel file, ODT file, ODS file or sends report as an email. Read more about export in chapter Export.

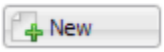
Reports

In this section of Reports Window, you can choose one of predefined or custom reports, which can be printed, previewed, exported or edited. Reports that will be displayed depend on view, which is currently active (Plans, Materials, Assemblies or Storages).

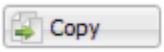


TIP! Double-click the chosen report to preview it immediately.

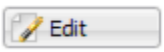
Further, it is possible to manage (create, copy, edit, delete) all available reports and also set printer for each report, in this section.



Creates new empty report from default template.

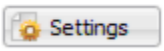


Copies selected report to new one.



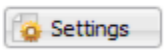
Starts editor for selected report.

Deletes selected report.

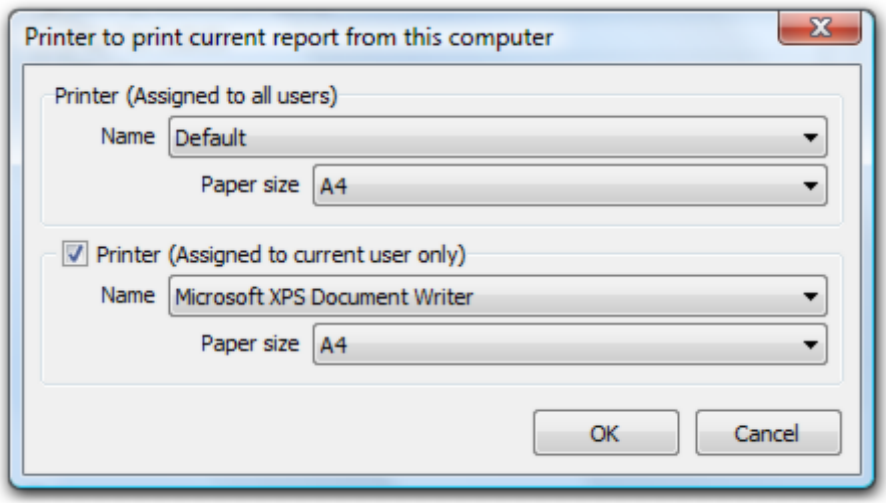


Sets printer for selected report.

Setting of printer for selected report

By clicking button 

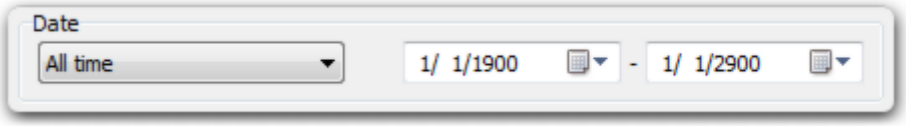
, it is possible to set printer and appropriate paper size to selected report. This setting is tied together with Computer Name, Report Name and/or User Name. It means that every computer on the network allows (if it is necessary) to print current report on different printer, without changing printing options (avoiding relentless changing of printer).



TIP! Setting of printer to each computer and user individually can be very useful feature on network versions (LAN, WAN) of the program, especially on thin client architecture networks such as Citrix and Terminal Services.

IMPORTANT! Assigning of printer to each user individually is possible only in network versions of the program.

Date



Some reports can be filtered by creation or manufacture date. You can set range of date (Date From - Date To) you want to print.

Following list represents predefined reports, which can be filtered by date:

Filter by creation date

Plans: Cutting Layouts, Cutting Layouts [compact], Plan Parts, Plan Sources, Plans, Plans [detailed].

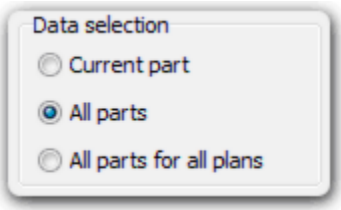
Filter by manufacture date

Materials: Material Sources, Material Sources [grouped by storages].

Storages: Storage Sources, Storage Sources [grouped by materials].

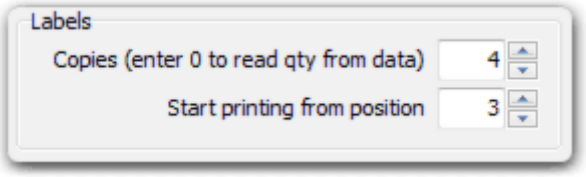
TIP! If you want to build your own reports using SQL (Structured Query Language), you can apply date parameters as "DateFr" (Date From) and "DateTo" (Date To) in your scripts.

Data selection



Here you can set data selection according to master dataset of selected report.
Set "Current ..." if you want to print current record or set "All ..." if you want to print all records of the current master dataset. Set "All ... for all ..." if you want to print batch report.

Labels



Here you can set number of copies and starting position to print label reports.

Copies (enter 0 to read qty from data)

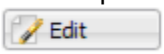
Set number of copies (1–500) for printing of labels. In this case number of copies will be same for each label in current dataset. Set 0 if you want to print number of copies, which is entered in quantity field (Qty) of current dataset.

Start printing from position

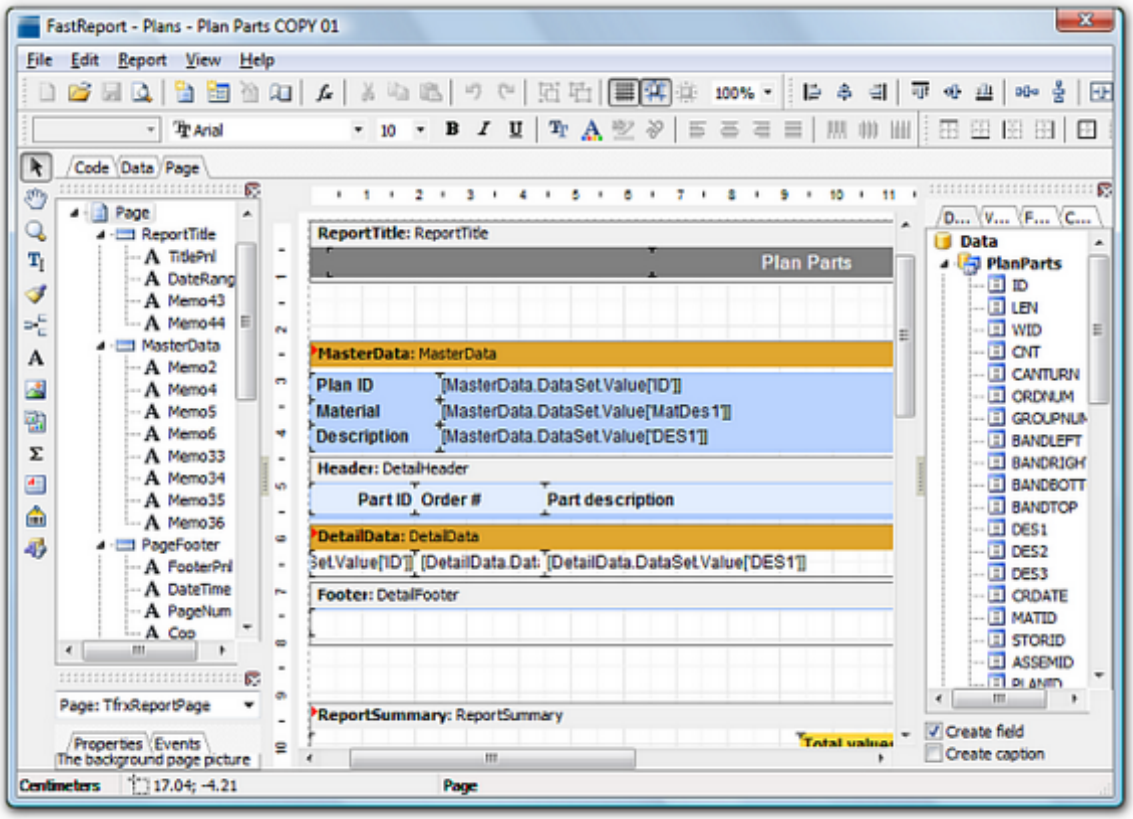
Set start position (1-200) from which you want to print first label of the current labels dataset. The order of printing the labels is "Top to Bottom" and "Left to Right", as you can see in the following layout.

1	5	9
2	6	10
3	7	. . .
4	8	

Editing of Standard Reports

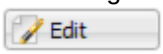
To start working with embedded report editor, select appropriate (custom) standard report and click the button 

or data navigator button .



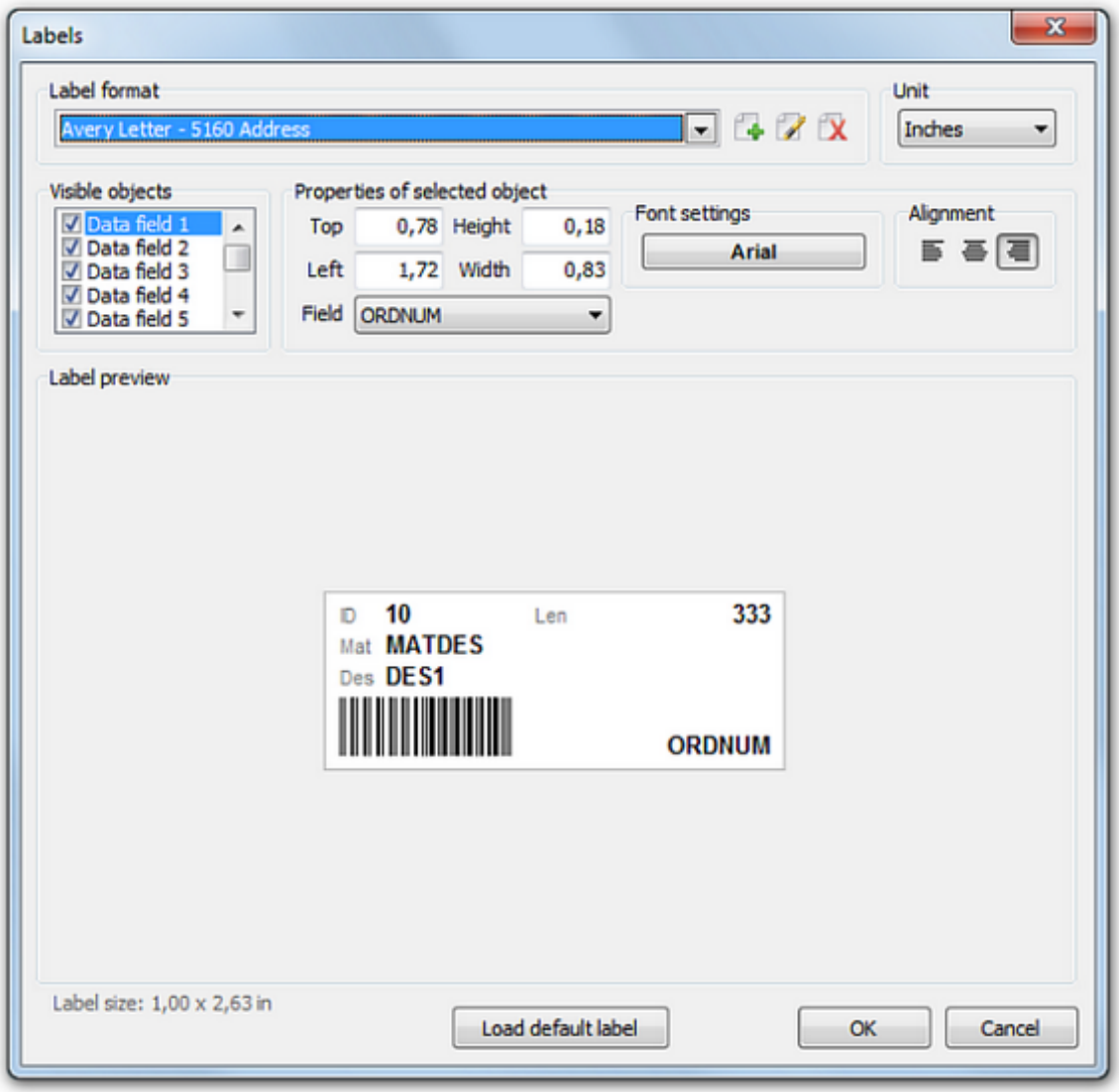
NOTE! CutLogic 1D has build in report editor – FastReport® generator. For details how to work with reports (printing and previewing) or for explanation regarding all report settings and/or export settings please download FastRreport user's manual from our web.

Editing of Label Reports

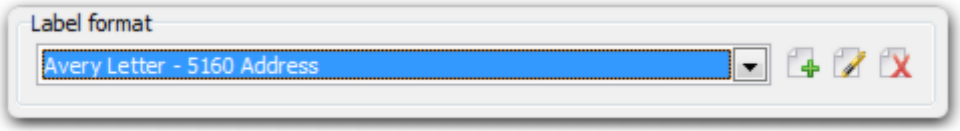
To start working with Simple Label Editor, select appropriate label report and click the button 

or data navigator button .

Simple Label Editor is very useful tool to accompany you to create and edit label reports quickly.



Label format

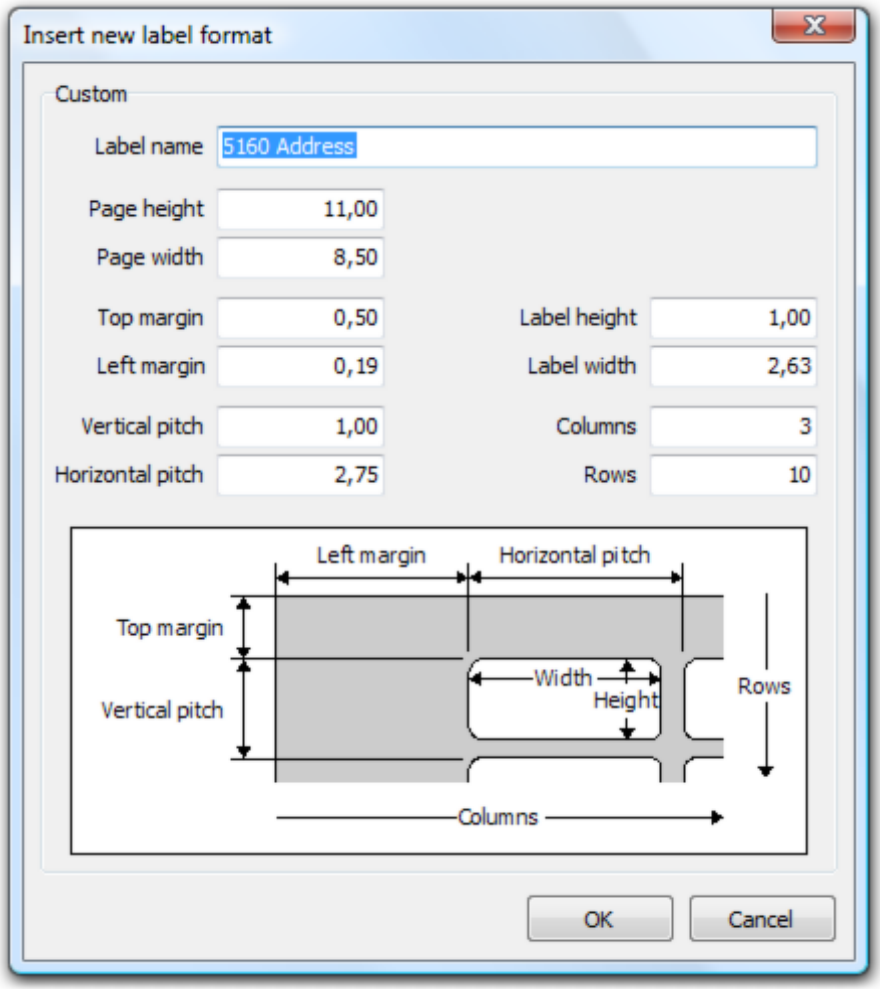


Here you can set format of label from hundreds of predefined label formats or you can create your own customized label format.

- Creates new label format.
- Starts property editor of selected label format.
- Deletes selected label format.

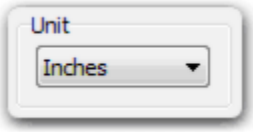
Label format editor

By clicking button or following property editor is shown.



Here you can set main properties of selected label format.

Unit



Here you can set desired units (Centimeters, Inches, Pixels).

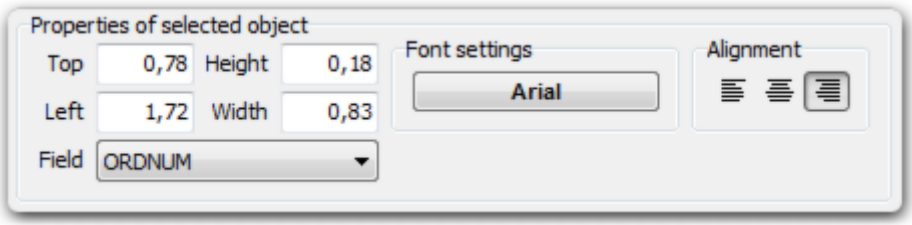
Visible objects

Here you can define objects, which you want to see on current designed label. It is possible to define 9 of Data field objects, 9 of Custom text objects and 2 Barcode objects. Check object, if you want to show it or uncheck desired object, if you want to set it invisible.

Properties of selected object

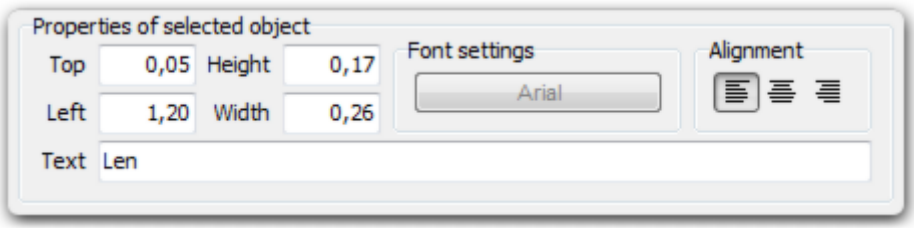
Here you can set properties of selected object.

Data field properties



Top	Sets top position of the object.
Left	Sets left position of the object.
Height	Sets height of the object.
Width	Sets width of the object.
Font settings	Displays font settings dialog.
Alignment	Sets text alignment (Left, Center, Right).
Field	Sets data field, which is displayed on the label.

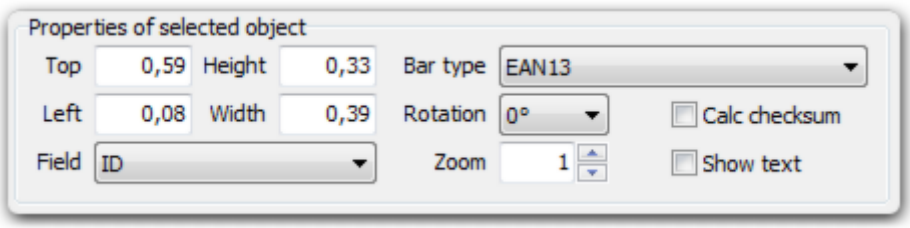
Custom text properties



Setting of custom text properties is similar to setting of data field properties. The only difference is that instead setting of data field from current dataset there is a

possibility to enter any custom text.

Barcode properties

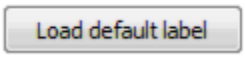


Top	Sets top position of the barcode.
Left	Sets left position of the barcode.
Height	Sets height of the barcode.
Width	Sets width of the barcode.
Field	Sets data field, which will represent the barcode data.
Bar type	Sets barcode type (many different types of barcodes are available).
Rotation	Sets rotation (orientation) of the barcode (0°, 90°, 180°, 270°).
Zoom	Sets zooming of barcode.
Calc checksum	Check, if you want program to automatically calculate checksum of the barcode.
Show text	Check, if you want to show text (from appropriate data field) on the barcode.

Label preview

Here you can see currently designed label, which is displayed very similarly to the final output (printing version), as in WYSIWYG (What You See Is What You Get) editors.

Loading of default label

Click button 

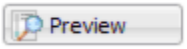
if you want to load label from default template.

TIP! If you are not satisfied with Simple Label Editor to create or edit label reports, you can create label reports as standard reports and arrange them according to your needs in embedded report editor - FastReport® generator (Professional and Enterprise editions only).

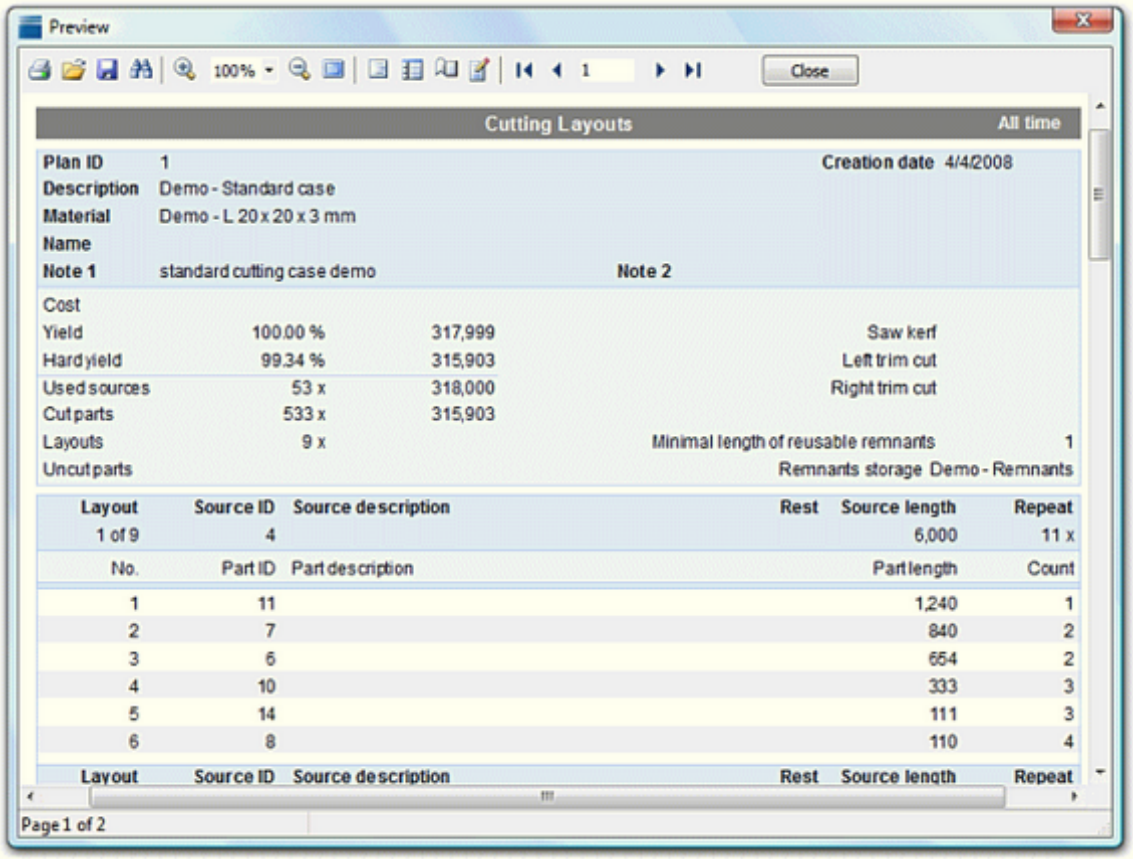
TIP! It is possible to create more standard and label reports and use them for printing, previewing, saving or exporting according to your needs (Professional and Enterprise editions only).

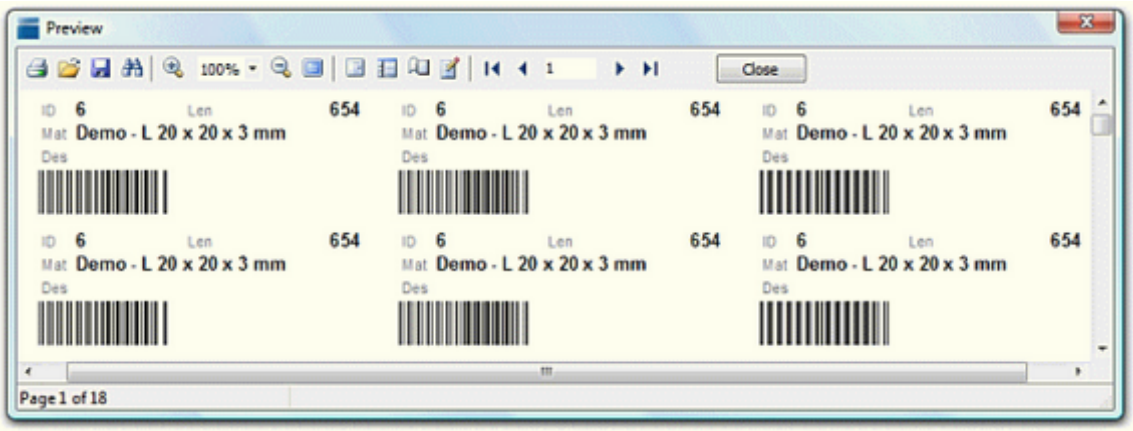
NOTE! Default reports can't be deleted or edited. However, it is possible to create a copy of these reports and edit them (Professional and Enterprise editions only).

Previewing of Reports

To preview selected report click the button 

or double-click the chosen report.
Following images show Cutting Layouts and Plan Part Labels reports in preview modes.


Preview
100%
1
Close
Cutting Layouts
All time
Plan ID 1
Creation date 4/4/2008
Description Demo - Standard case
Material Demo - L 20 x 20 x 3 mm
Name
Note 1 standard cutting case demo
Note 2
Cost
Yield 100.00 % 317,999
Hard yield 99.34 % 315,903
Used sources 53 x 318,000
Cut parts 533 x 315,903
Layouts 9 x
Uncut parts
Saw kerf
Left trim cut
Right trim cut
Minimal length of reusable remnants 1
Remnants storage Demo - Remnants
Layout Source ID Source description Rest Source length Repeat
1 of 9 4 6,000 11 x
No. Part ID Part description Part length Count
1 11 1,240 1
2 7 840 2
3 6 654 2
4 10 333 3
5 14 111 3
6 8 110 4
Layout Source ID Source description Rest Source length Repeat
Page 1 of 2



NOTE! CutLogic 1D has build in report editor – FastReport® generator. For details how to work with reports (print and preview) or for explanation regarding all report settings and/or export settings please download FastRreport user's manual from our web.

Import

General

CutLogic 1D provides very sophisticated and powerful features for import. Importing of data is very easy and user friendly. All commonly used input formats of source files are supported in the program. You can import data from Clipboard, CSV file, Text file, Microsoft Excel file, Microsoft Access file or via connection file. Importing of data via connection file brings unmatched versatility into CutLogic 1D and allows you to import data from more than 40 other sources - databases, tables and files.

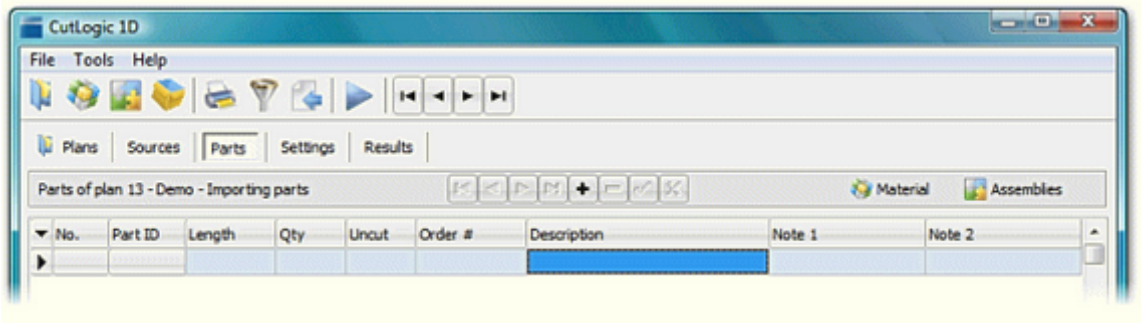
NOTE! See Editions comparison chapter to check if desired importing format or method is available in given edition of CutLogic 1D.

CutLogic 1D allows importing of data for following Views:

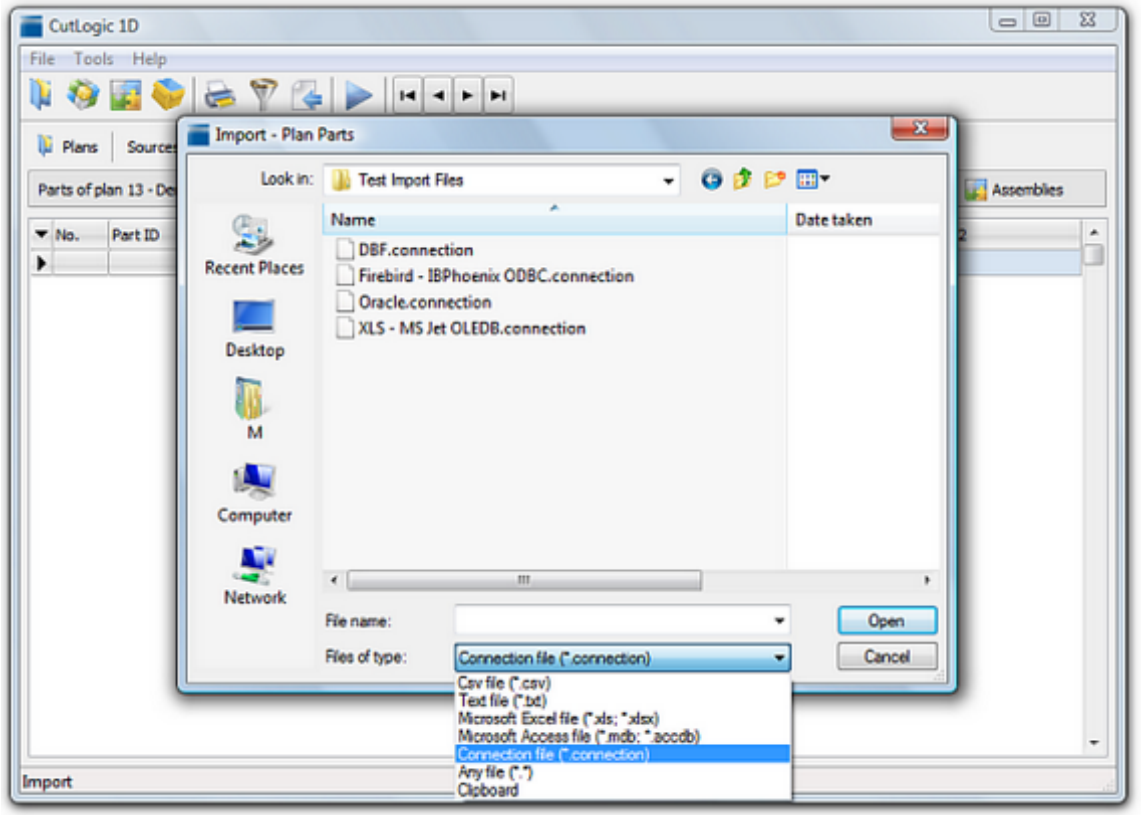
- Plans
- Plan Sources
- Plan Parts
- Materials
- Material Sources
- Material Parts
- Material Settings list
- Assemblies
- Assembly Parts
- Storages

How to Import Data

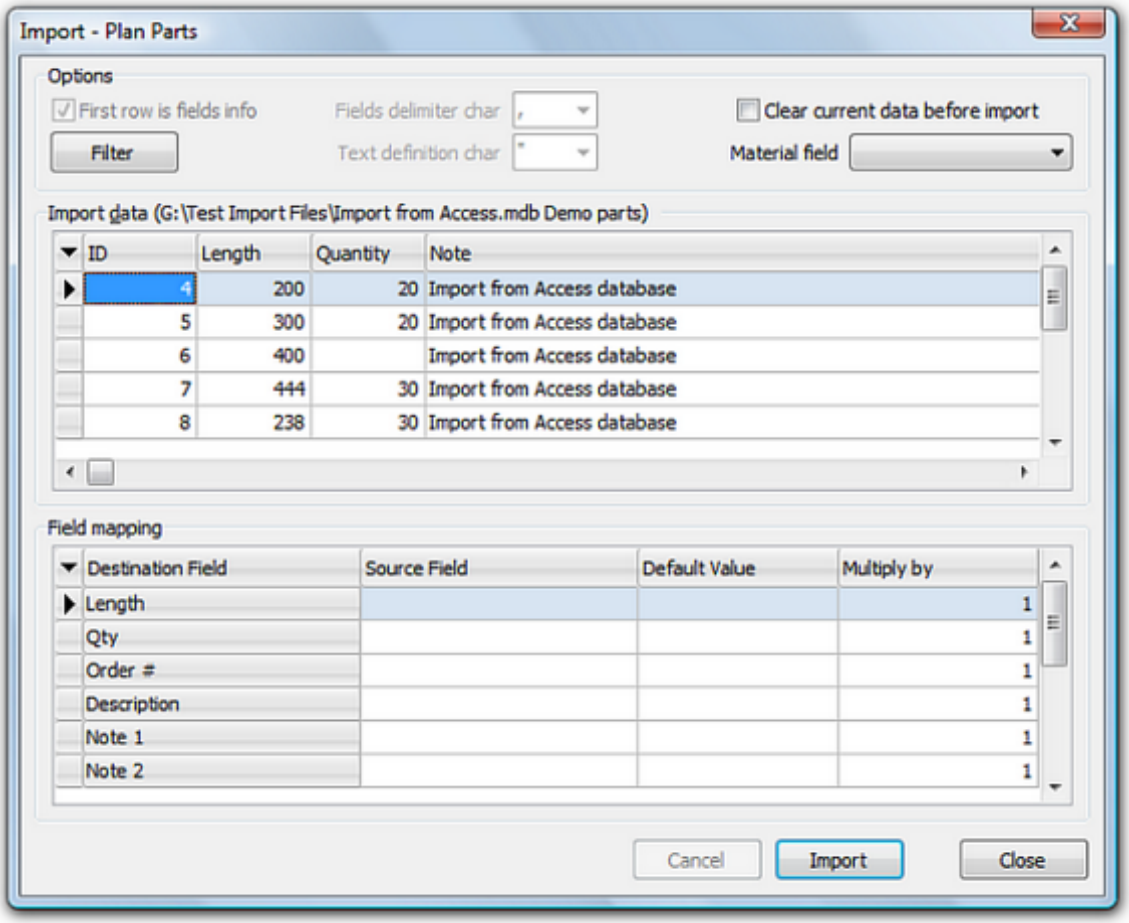
First, click desired tab to open form where you want to import data e.g. Plan Parts.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 13 - Demo - Importing parts
Material Assembles
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2

Then click the button [Import] in the Main Toolbar or press keyboard shortcut [Ctrl+I] to open the Import form in new window.



Now define the path to the file containing data for import, select desired file format, pick the desired source file from the list and click the button [Open].



Now, you can define structure of imported file, map the source fields to the destination fields and define some transformations like "Default Value" or "Multiple by" in this form. When mapping done, click the button [Import] to start importing of data. When import is done, you can start to work with imported data.

TIP! If you have prepared data to import stored in clipboard, you can import them directly by pressing keyboard shortcut [Ctrl+J].

Explanation of Import form:

Options

First row is fields info	If the first row of import file is fields information , names of the fields will appear in the table of imported data instead of Field1, Field2, etc.
Filter	Here you can set filter for imported data. See more about setting of filter in chapter Filtering of Data .
Fields delimiter char	Here you can set fields delimiter identical with fields delimiter in import file. (used only for *.txt and *.csv files)
Text definition char	Here you can set text definition in field. (Some text fields, e.g. Description or Note, can contain characters identical to "Fields delimiter char", therefore it is necessary to define these fields)
Clear current data before import	This check box allows you to clear all data from given View before Import.
Material field	Allows to set data field containing type of material of imported parts. If material field is defined and imported data contain more than one type of material, multiple plans will be created - each for one material. Parts with undefined (empty) material field are imported into current plan. (It is possible to set material field only for import of plan parts!)

Import data

Displays actual table format - structure of imported file based on selected Options. Shows how the fields and rows of the file are recognized. Important for *.txt , *.csv and *.* files.

Field mapping

Destination Field	Shows Destination field where source field will be imported.
Source Field	This is mapping field where you can set the name of Source Field, which will be imported to Destination Field. If you do not set Source field, to Destination Field won't be imported any value. For better orientation in names of imported fields see the table Import data.
Default Value	Allows to define default value for cases when values for given field are not defined (empty) in source file.
Multiply by	Allows defining multiply factor. It is number by which is numeric value of given field multiplied during the import.

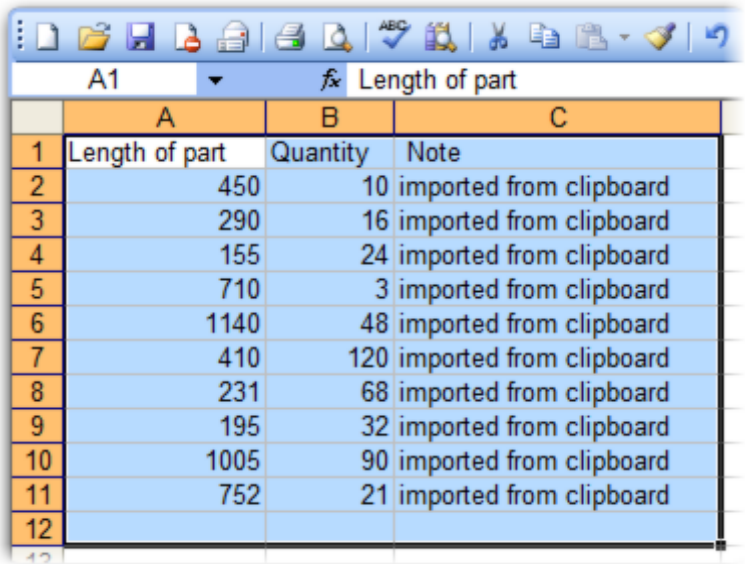
NOTE! When you import master data of Materials/Assemblies/Storages and defined value for field "Description" is already located in database, record with mentioned description will be overwritten by the newest (imported) data. Otherwise, if value for field "Description" is not located in database, new Material/Assembly/Storage will be inserted. Material/Assembly/Storage with undefined description can't be imported!

Examples of Imports

Importing from clipboard

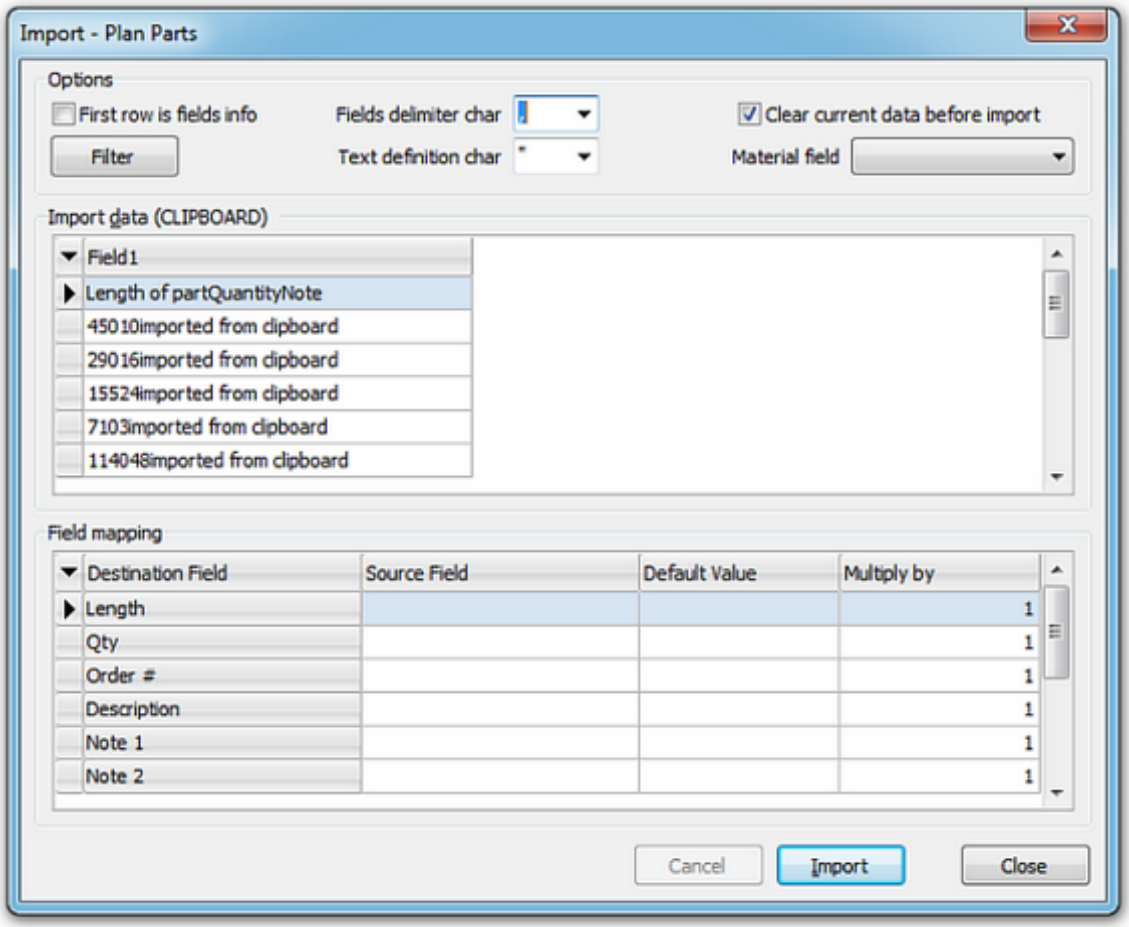
Importing from clipboard is very similar to importing from any text based files like *.txt, *.csv or *.*.

Before importing data from clipboard, it is necessary to prepare relevant data for import. In Excel, Notepad, Word, or any other editor (spreadsheet) choose the portion of data you want to import into CutLogic 1D. Then copy selected data to clipboard. Click the selected data with the right button of a computer mouse and choose "Copy" in popup menu or [Ctrl+C]. Data saved in this way is always at your disposal for import.

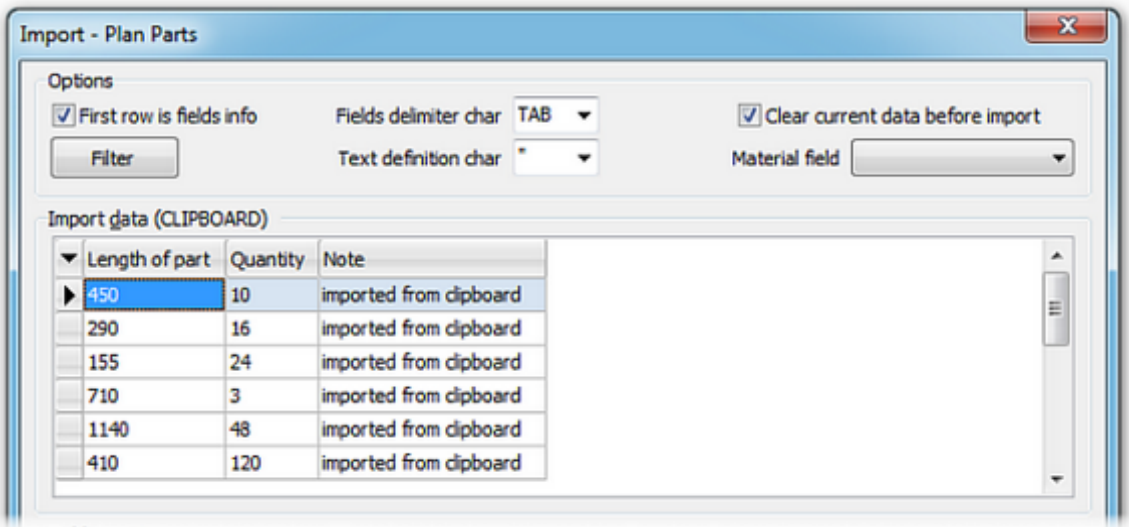


	A	B	C
1	Length of part	Quantity	Note
2	450	10	imported from clipboard
3	290	16	imported from clipboard
4	155	24	imported from clipboard
5	710	3	imported from clipboard
6	1140	48	imported from clipboard
7	410	120	imported from clipboard
8	231	68	imported from clipboard
9	195	32	imported from clipboard
10	1005	90	imported from clipboard
11	752	21	imported from clipboard
12			

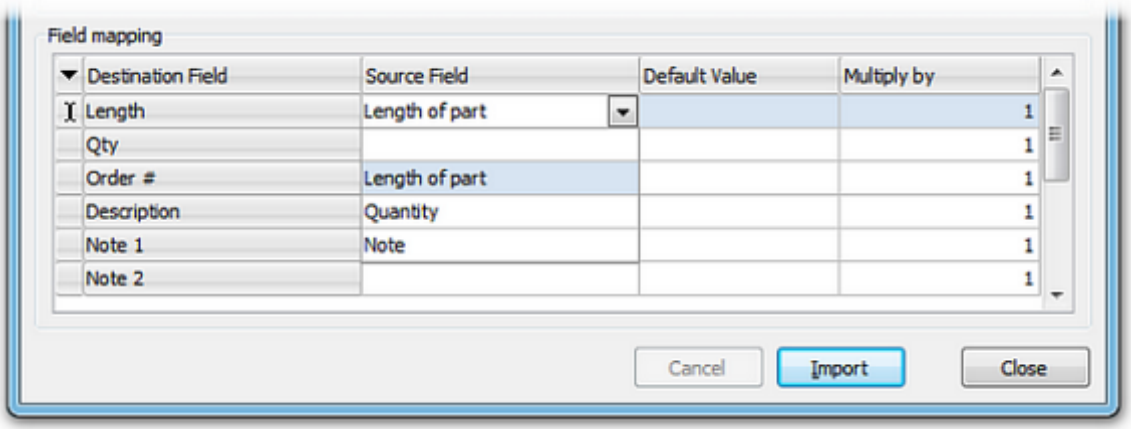
Having prepared data in clipboard you can start with import by pressing keyboard shortcut [Ctrl+J]. Import mapping form in our case shows following:



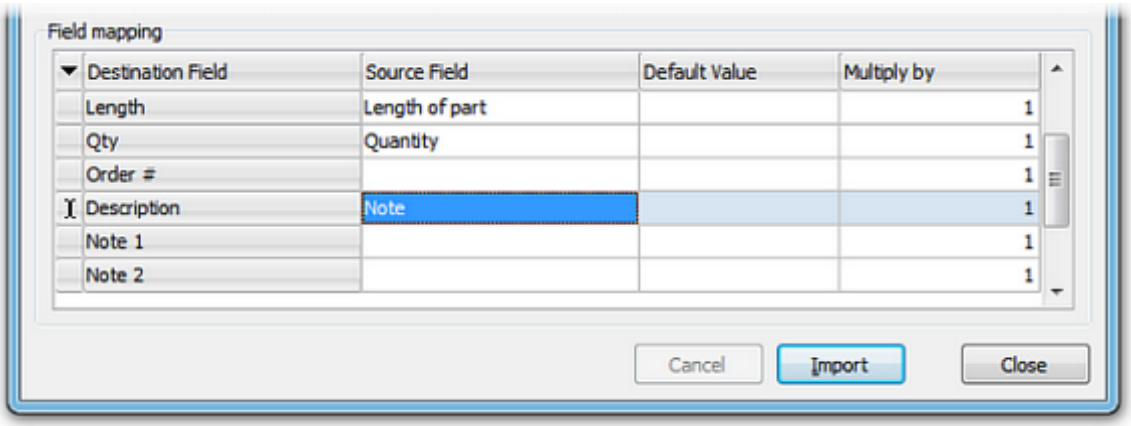
First we have to setup options in order to format source data from the clipboard to the form suitable for the fields mapping. In our case we have activated option "First row is fields info" and we have set "Field delimiter char" on "TAB" value.



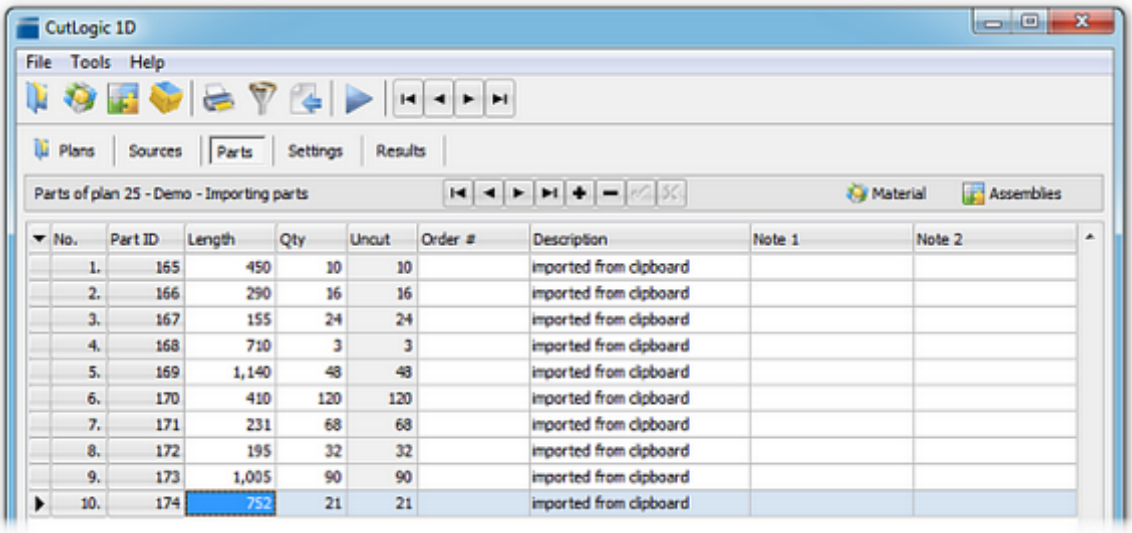
Now we can start to map the source fields to the destination fields. By left click on given "Source field" in the Field mapping table mapping list of available source fields opens.



Now we can pick one source field to map it on given destination field.
We continue until all mapping is finished.



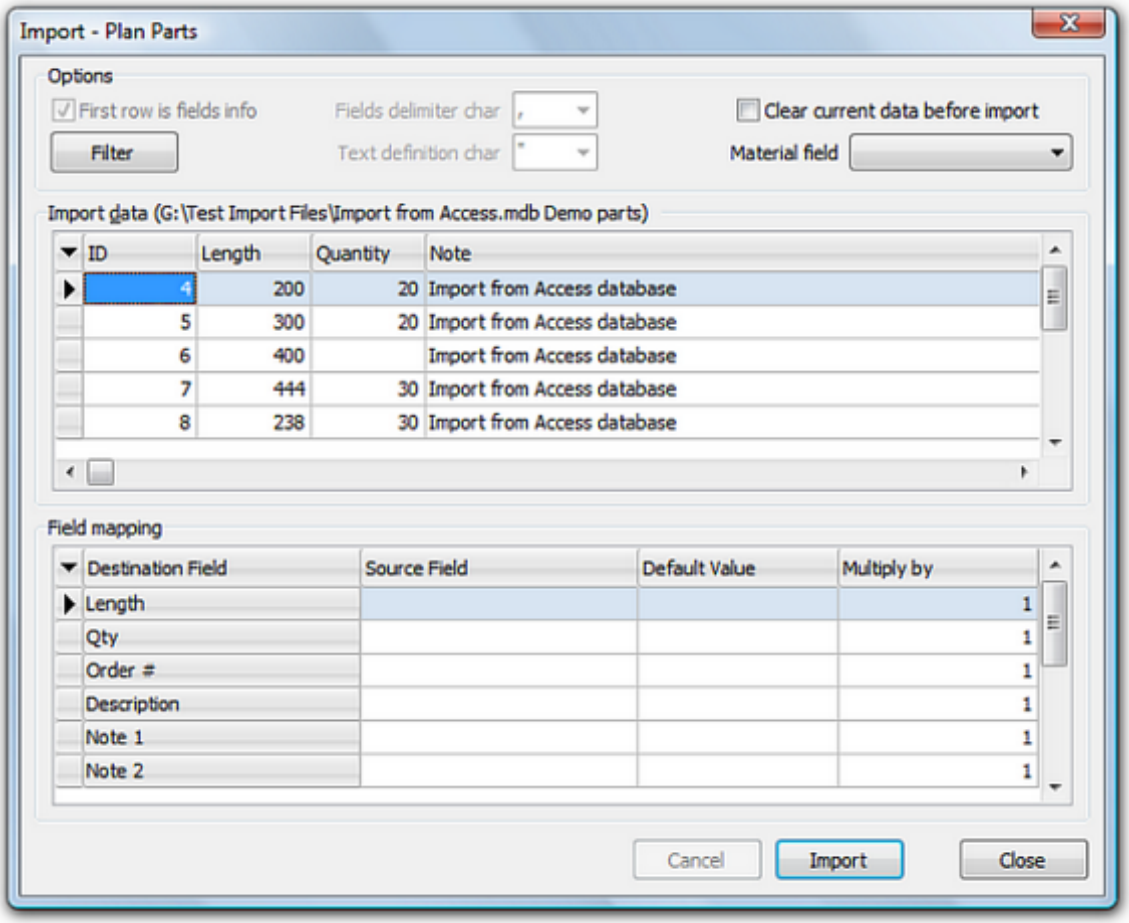
Now we can click the [Import] button and after import is done we can start to work with imported data:


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 25 - Demo - Importing parts
Material Assemblies
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2
1. 165 450 10 10 imported from clipboard
2. 166 290 16 16 imported from clipboard
3. 167 155 24 24 imported from clipboard
4. 168 710 3 3 imported from clipboard
5. 169 1,140 48 48 imported from clipboard
6. 170 410 120 120 imported from clipboard
7. 171 231 68 68 imported from clipboard
8. 172 195 32 32 imported from clipboard
9. 173 1,005 90 90 imported from clipboard
10. 174 752 21 21 imported from clipboard

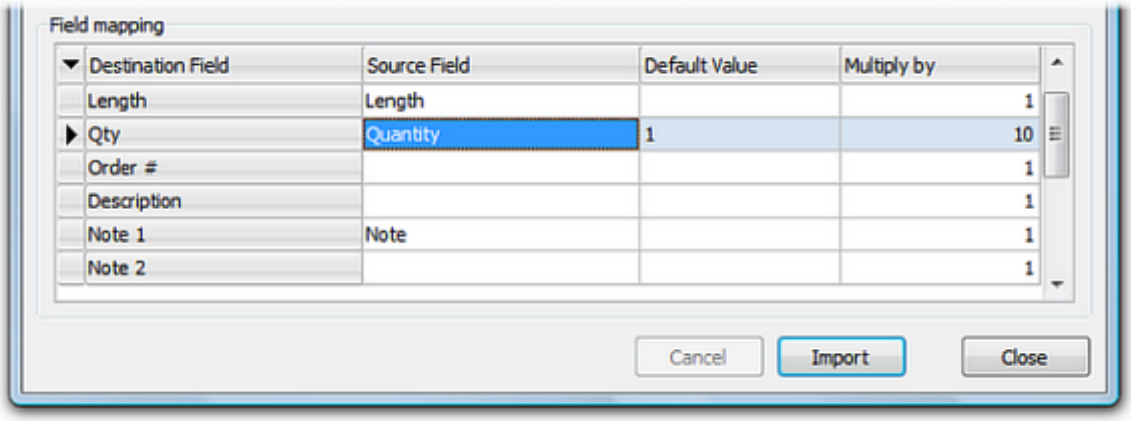
Importing from Access db file

Import from Access db files (*.mdb, *.accdb) is very similar to imports from any table based files like Microsoft Excel (*.xls or *.xlsx).

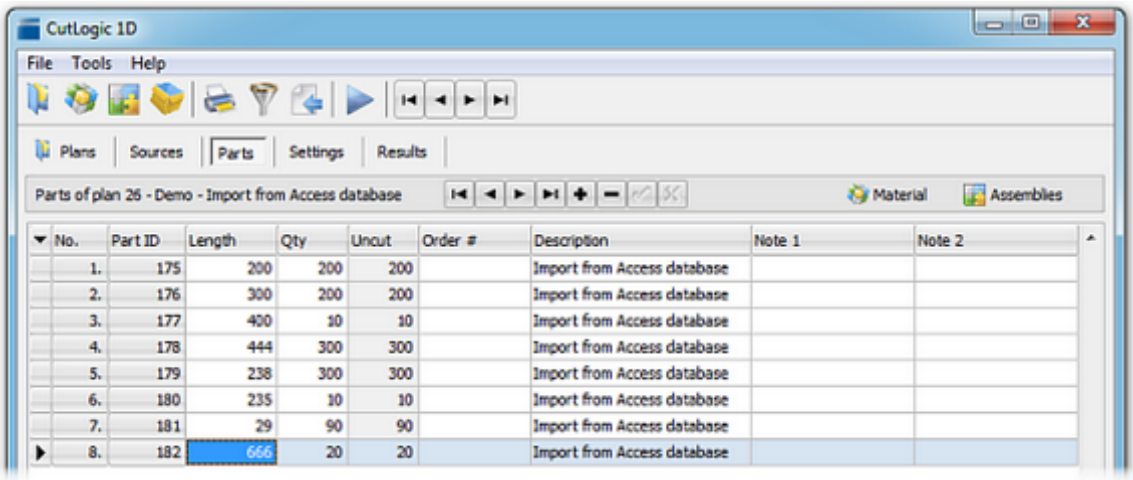
After defining the path to the import file and selecting of desired file following Import mapping form opens:



Now we can start mapping. In our case we have used "Default Value" feature for field "Qty" because of some source data in Access file have no values and "Multiply by" column has been set to 10 on "Qty".



Now we can click the [Import] button and we can start to work with imported data.


CutLogic 1D
File Tools Help
Plans Sources Parts Settings Results
Parts of plan 26 - Demo - Import from Access database
Material
Assemblies
No. Part ID Length Qty Uncut Order # Description Note 1 Note 2
1. 175 200 200 200 Import from Access database
2. 176 300 200 200 Import from Access database
3. 177 400 10 10 Import from Access database
4. 178 444 300 300 Import from Access database
5. 179 238 300 300 Import from Access database
6. 180 235 10 10 Import from Access database
7. 181 29 90 90 Import from Access database
8. 182 666 20 20 Import from Access database

Importing via connection file

Import via connection files extremely extends importing capabilities of CutLogic 1D. Connection file is a file containing information how to connect to existing data source via specific ODBC or OLE DB driver installed on computer where CutLogic 1D runs. Connection file is simple text file with one line including connection definition, e.g. for MSSQL, file ThisSampleFile.connection would include:

Provider=SQLOLEDB;Server=myServerAddress;Database= myDataBase;Uid=myUsernam e;Pwd=myPassword;

For more information how to define connection string in your specific case see http://www.connectionstrings.com or other sources or contact your administrator.

Export

General

CutLogic 1D provides powerful features and rich functionality for export. Exporting of data is very easy and user friendly. Many output formats are supported in the program. You can export data to following file formats:

- TXT - Text
- CSV - Comma separated values
- XLS - MS Excel table
- HTML - Hyper Text Markup Language
- PDF - Portable Document Format
- RTF - Rich Text Format
- XML - Extensible Markup Language
- ODT - Open Document Format
- ODS - Open Document Spreadsheet

All mentioned file formats can be sent as an email.

NOTE! See Editions comparison chapter to check if desired output format is available in given edition of CutLogic 1D.

CutLogic 1D export is a part of Report form. You can export any report available in given report form. You can export reports from one of following report forms available in the program:

Reports - Plans

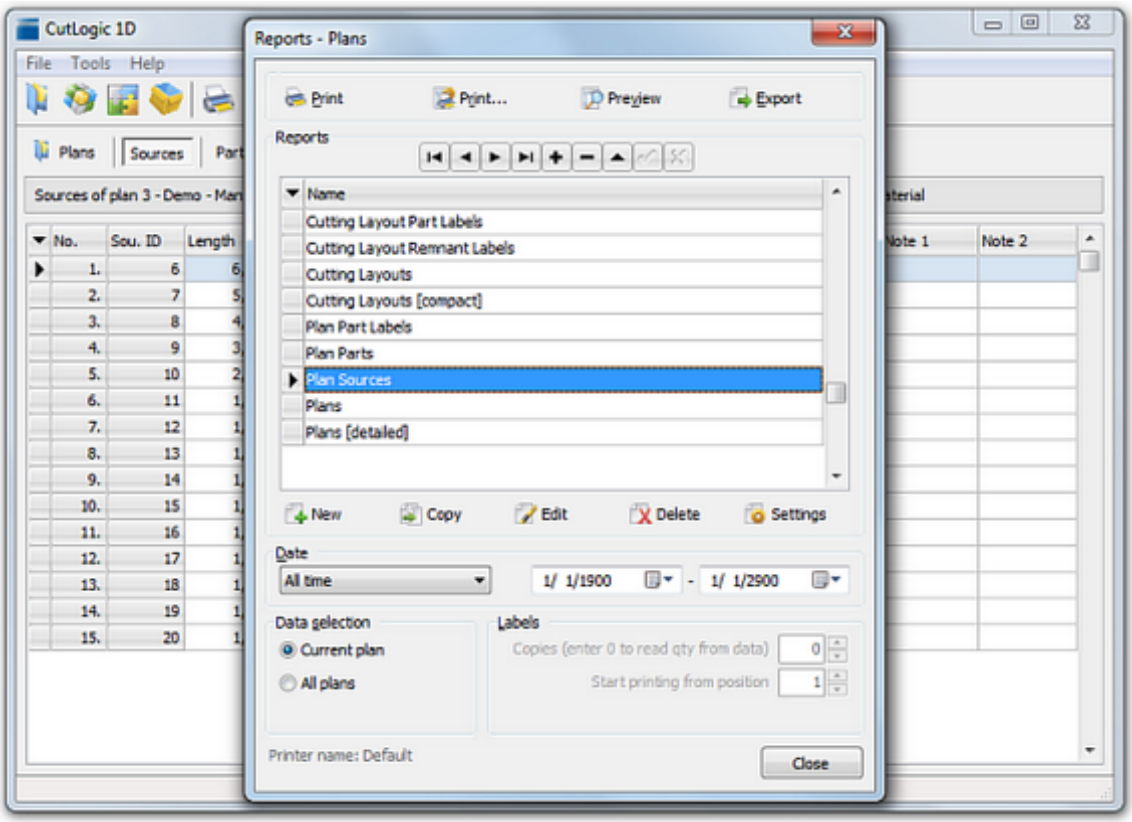
Reports - Materials

Reports - Assemblies

Reports - Storages

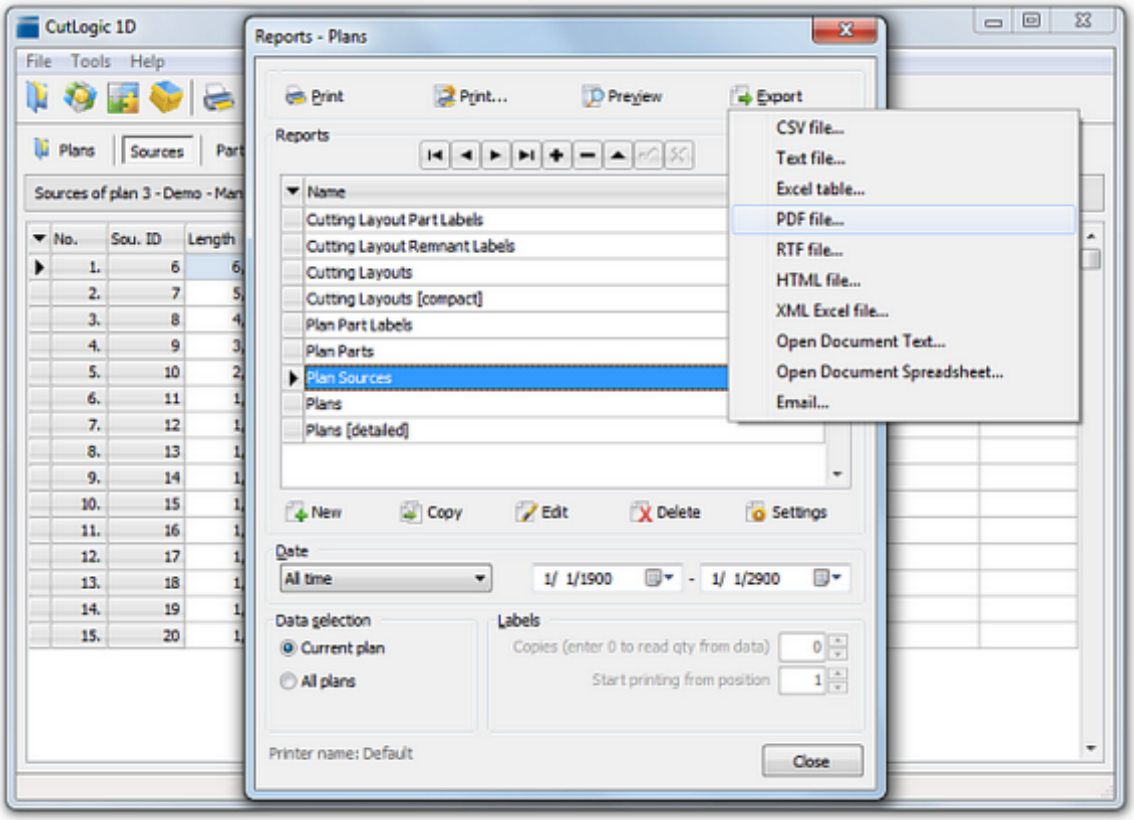
How to Export Data

To export data, first select desired View and click the button [Reports] in the Main Toolbar or select the menu item *"File > Reports"* or use [Ctrl+P] keyboard shortcut.

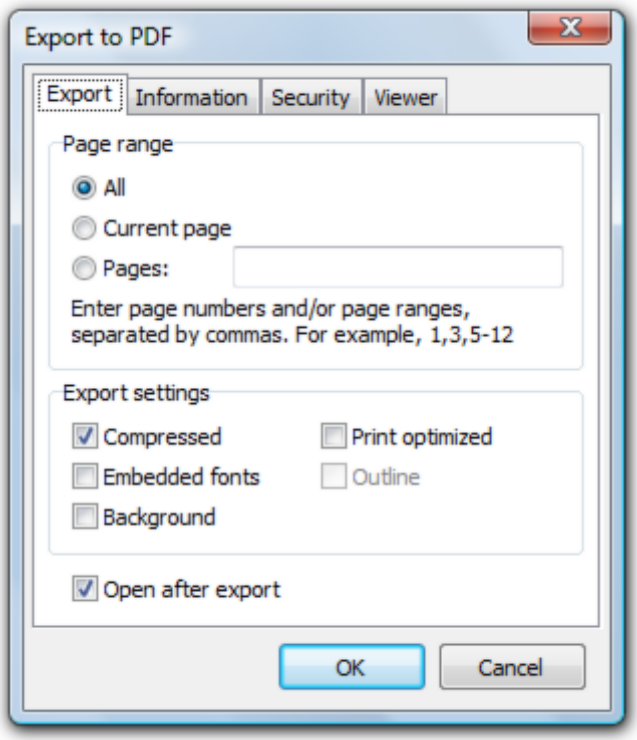


Select desired report from the list of available reports, set-up report options "Date" and "Data selection" and click the button [Export].

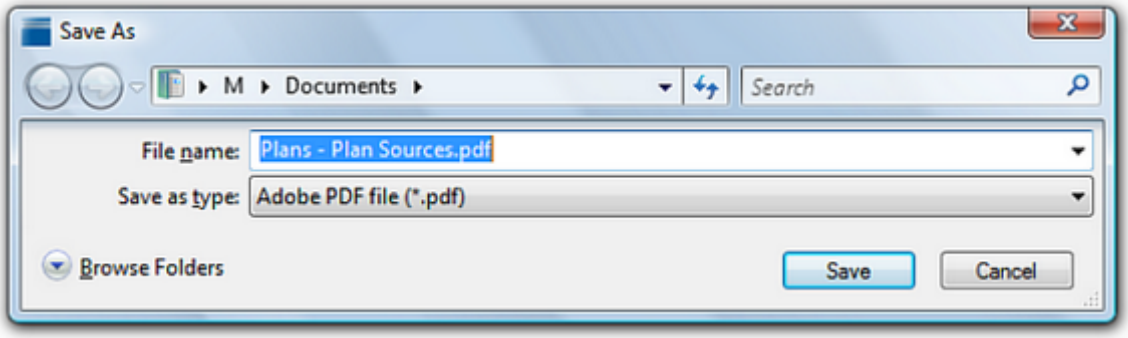
Select desired export format from the option list.

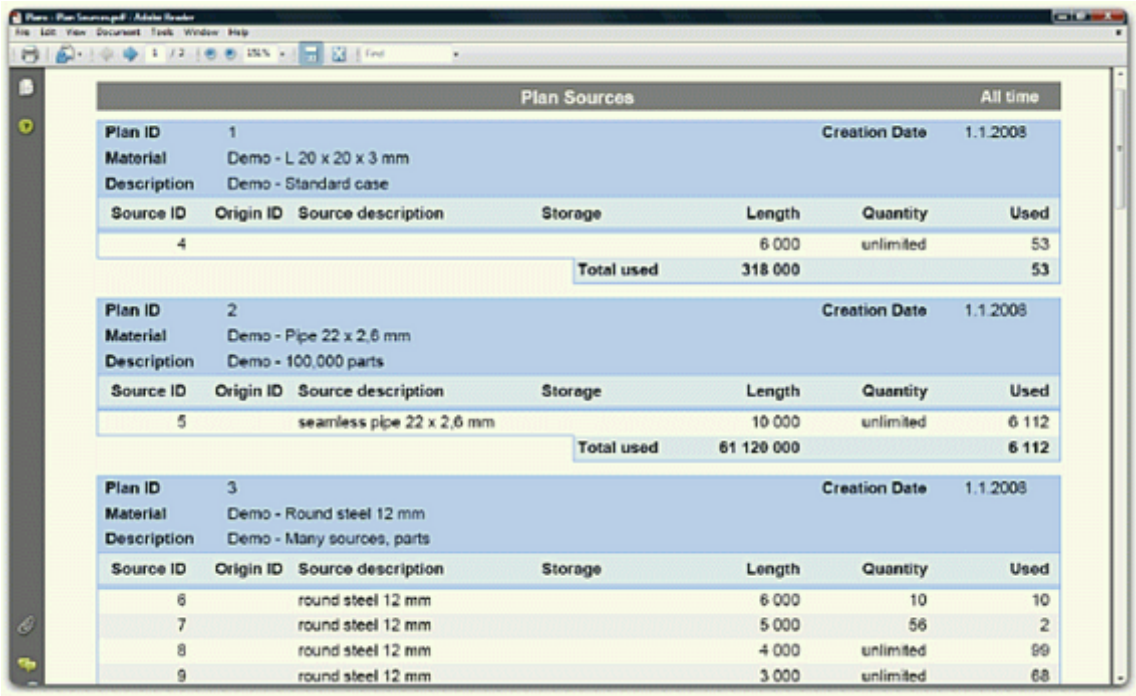


Check or change export settings and click "OK":



Select the file name and directory and click the button [Save]:





Plan Sources — All time

Plan ID	1				**Creation Date**	1.1.2008
Material	Demo - L 20 x 20 x 3 mm					
Description	Demo - Standard case					
Source ID	**Origin ID**	**Source description**	**Storage**	**Length**	**Quantity**	**Used**
4				6 000	unlimited	53
			Total used	**318 000**		**53**
Plan ID	2				**Creation Date**	1.1.2008
Material	Demo - Pipe 22 x 2,6 mm					
Description	Demo - 100,000 parts					
Source ID	**Origin ID**	**Source description**	**Storage**	**Length**	**Quantity**	**Used**
5		seamless pipe 22 x 2,6 mm		10 000	unlimited	6 112
			Total used	**61 120 000**		**6 112**
Plan ID	3				**Creation Date**	1.1.2008
Material	Demo - Round steel 12 mm					
Description	Demo - Many sources, parts					
Source ID	**Origin ID**	**Source description**	**Storage**	**Length**	**Quantity**	**Used**
6		round steel 12 mm		6 000	10	10
7		round steel 12 mm		5 000	56	2
8		round steel 12 mm		4 000	unlimited	99
9		round steel 12 mm		3 000	unlimited	68

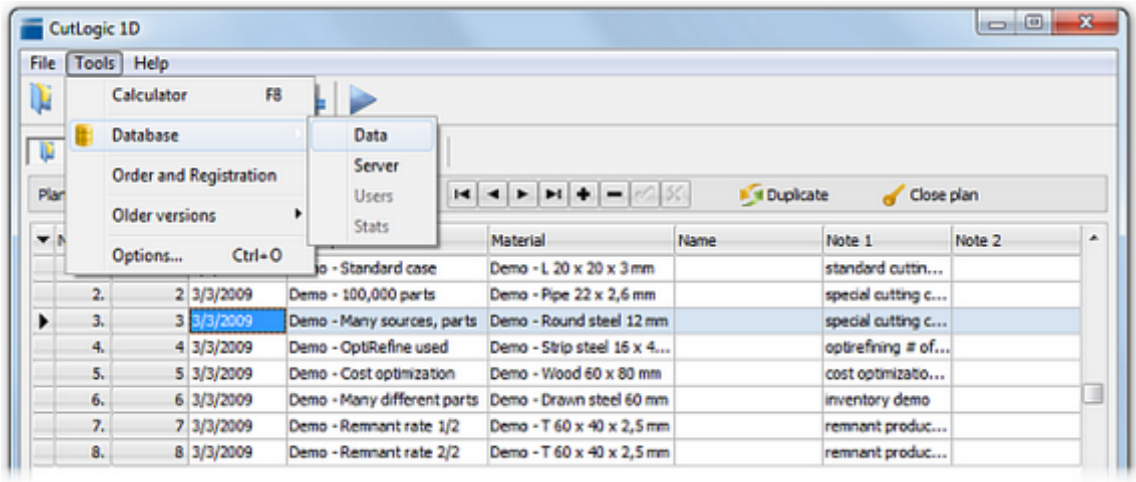
NOTE! CutLogic 1D has build in report editor and generator – Fast report. For details how to work with reports or for explanation regarding all report settings and/or export settings please download Fast report manual from our web.

Database Administration

CutLogic 1D uses for its data Firebird database. It brings new features in terms of security, reliability, networking and data management into the program. This chapter describes how to maintain the data and the users.

Data backup and restore

To maintain the data select the menu item *"Tools > Database > Data"* .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Tools
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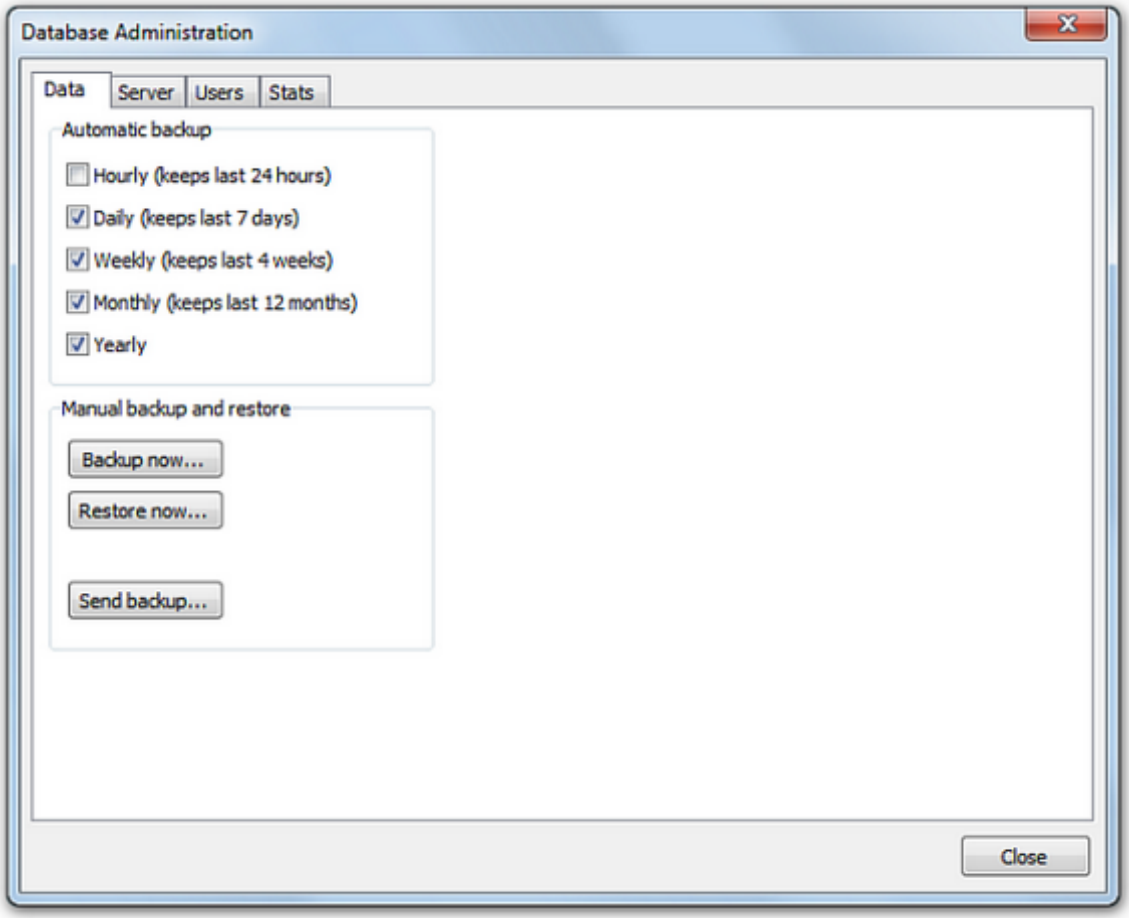
Close plan
Material
Name
Note 1
Note 2
Demo - Standard case
Demo - L 20 x 20 x 3 mm
standard cuttin...
2. 2 3/3/2009 Demo - 100,000 parts Demo - Pipe 22 x 2,6 mm special cutting c...
3. 3 3/3/2009 Demo - Many sources, parts Demo - Round steel 12 mm special cutting c...
4. 4 3/3/2009 Demo - OptiRefine used Demo - Strip steel 16 x 4... optirefining # of...
5. 5 3/3/2009 Demo - Cost optimization Demo - Wood 60 x 80 mm cost optimizatio...
6. 6 3/3/2009 Demo - Many different parts Demo - Drawn steel 60 mm inventory demo
7. 7 3/3/2009 Demo - Remnant rate 1/2 Demo - T 60 x 40 x 2,5 mm remnant produc...
8. 8 3/3/2009 Demo - Remnant rate 2/2 Demo - T 60 x 40 x 2,5 mm remnant produc...

Following Database Administration form opens in new window:



Automatic backup of the data

Automatic backup allows you to define frequency of creation the backup files. Check one or more options in "Automatic Backup" area to match your backup strategy.

NOTE! Automatic backup works in the time loop. If you chose, for example, hourly backup, system automatically creates new backup file every hour. After 24 hours new backup file replaces the oldest backup file, so that the oldest available backup file can not be older than 24 hours. Individual backups (Hourly, Daily, Weekly, etc.) work independently, so for example if you set on Daily and Weekly backups, Daily backup will keep backups for last 7 days (one backup per day); and Weekly backup will keep backups for last 4 weeks (one backup per week).

Manual backup and restoration of the data

You can backup or restore your data anytime as you need.

Send backup

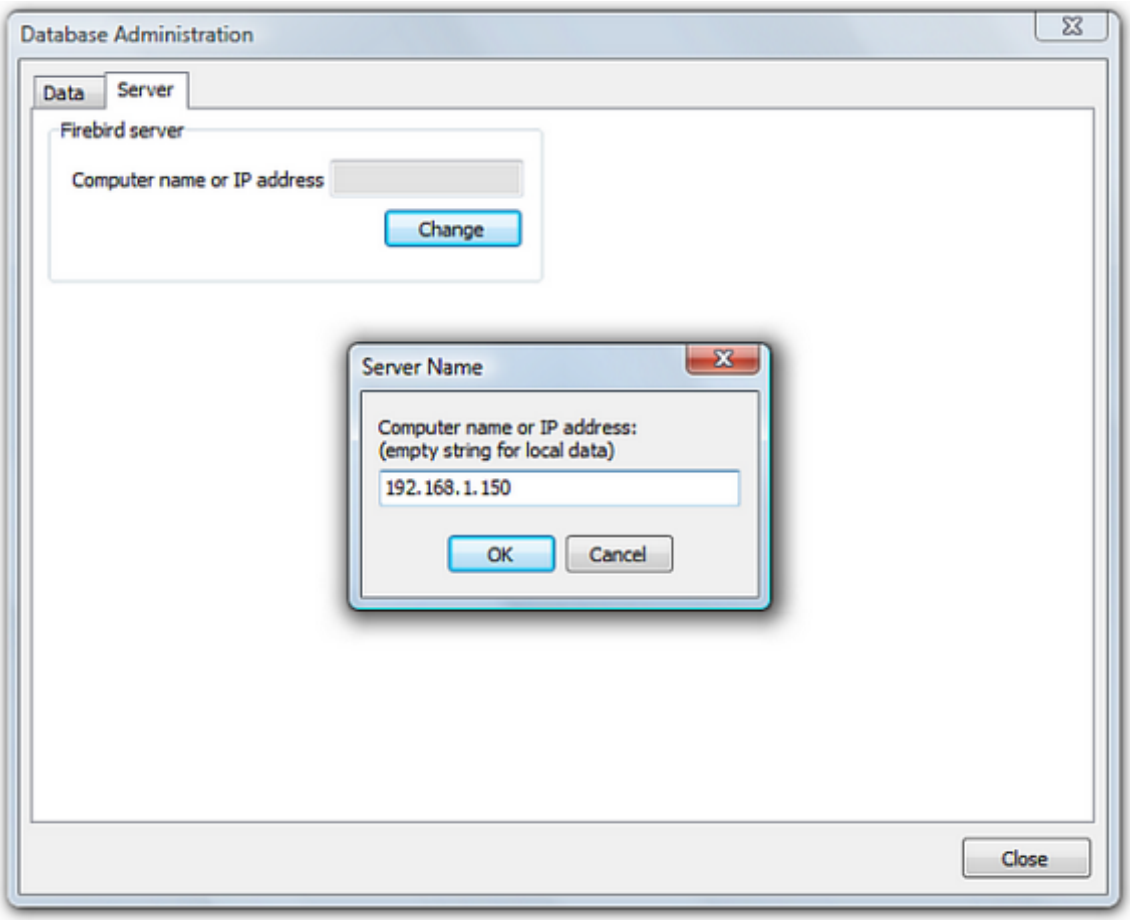
You can send your data via email for inspection in case of any damage or other purpose to our support department.

Embedded versus Network mode of CutLogic 1D

The CutLogic 1D works after the installation with embedded Firebird database. You do not have to install database separately - it is essential part of the program. However the data saved in this embedded database is not available for other users and can not be shared. Only way how to share the data is to install the Firebird database and switch the CutLogic 1D to the network mode.

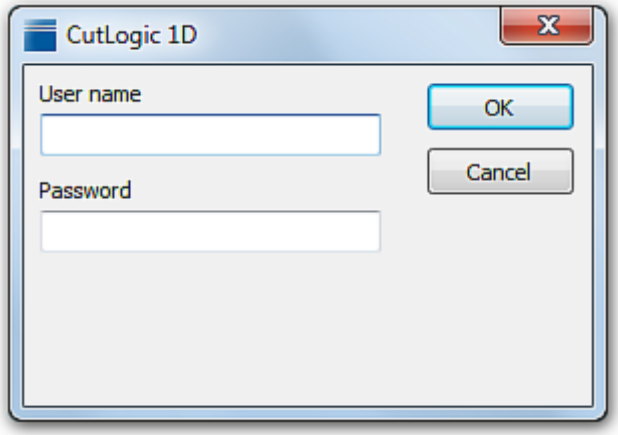
Changing CutLogic 1D to the network mode

To switch the program to the network mode, select the menu item *"Tools > Database > Server"* and click the button [Change].



Fill in computer name or IP address where Firebird SQL server is installed and click the [OK] button.

Program automatically restarts and new Login dialog box appears:



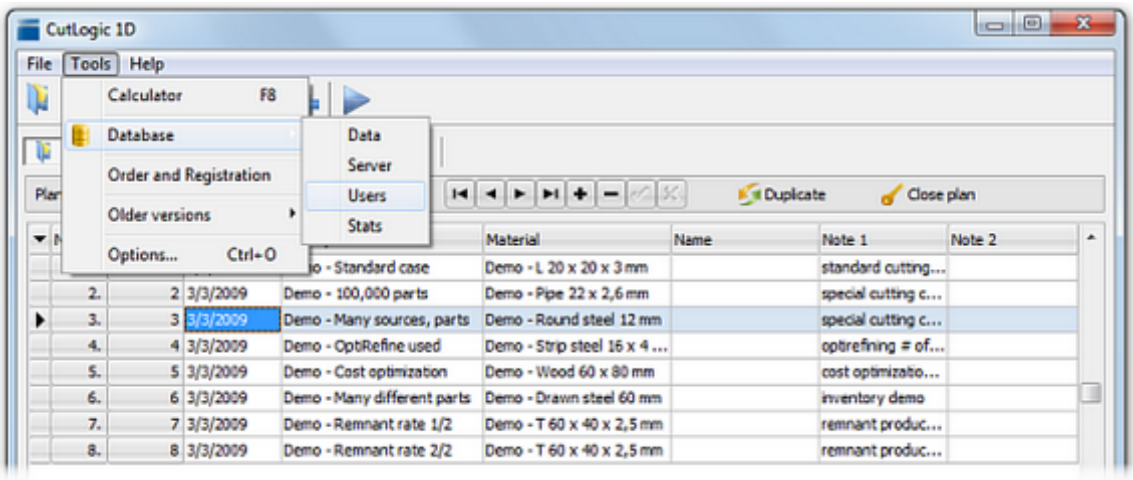
Fill in user name and password and click the [OK] button to start the program.

NOTE! Firebird SQL server contains default user "SYSDBA" with default password "masterkey". You can use this default user for login into CutLogic 1D or create new users and assign them as is described farther in this chapter.

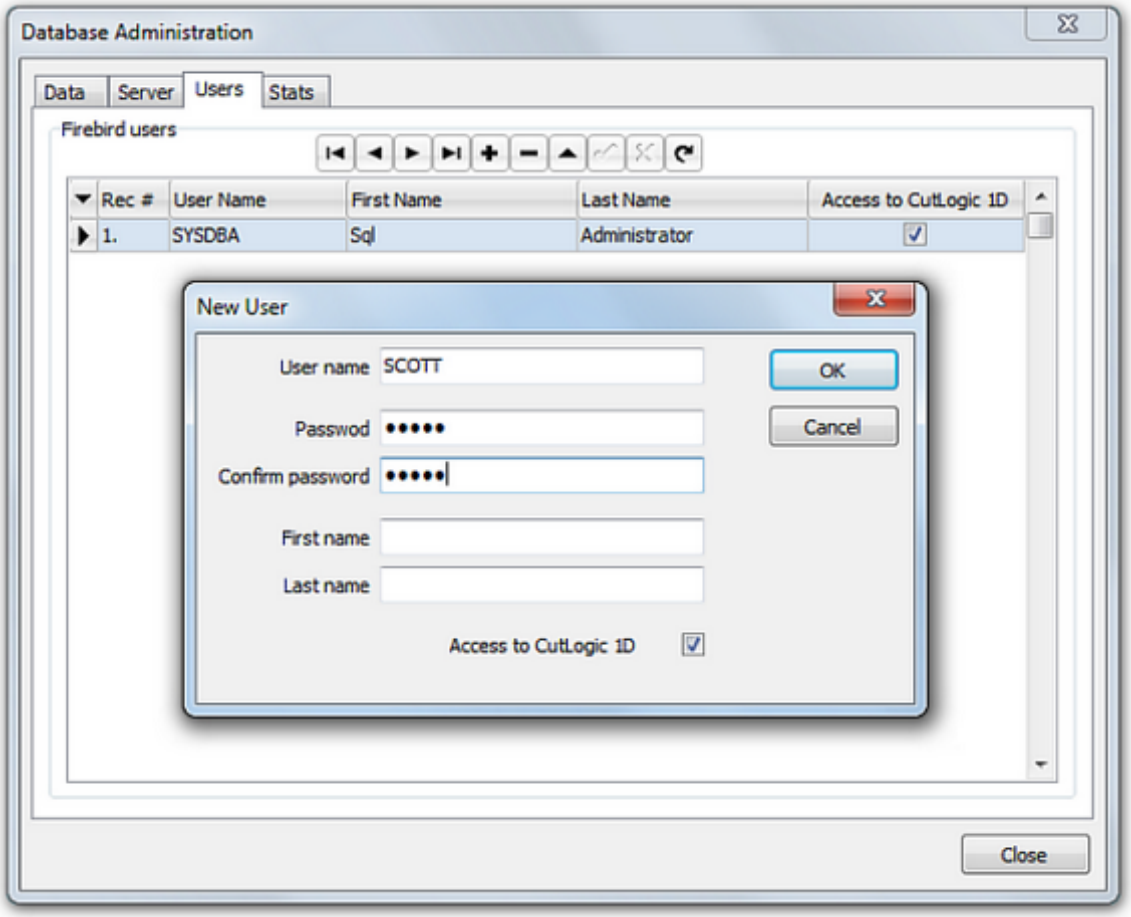
See also Network Installation.

Maintaining the users

CutLogic 1D has to work in network mode to allow working with users and showing the statistics.



To add new user, select the menu item *"Tools > Database > Users"* and click the button to add new user.

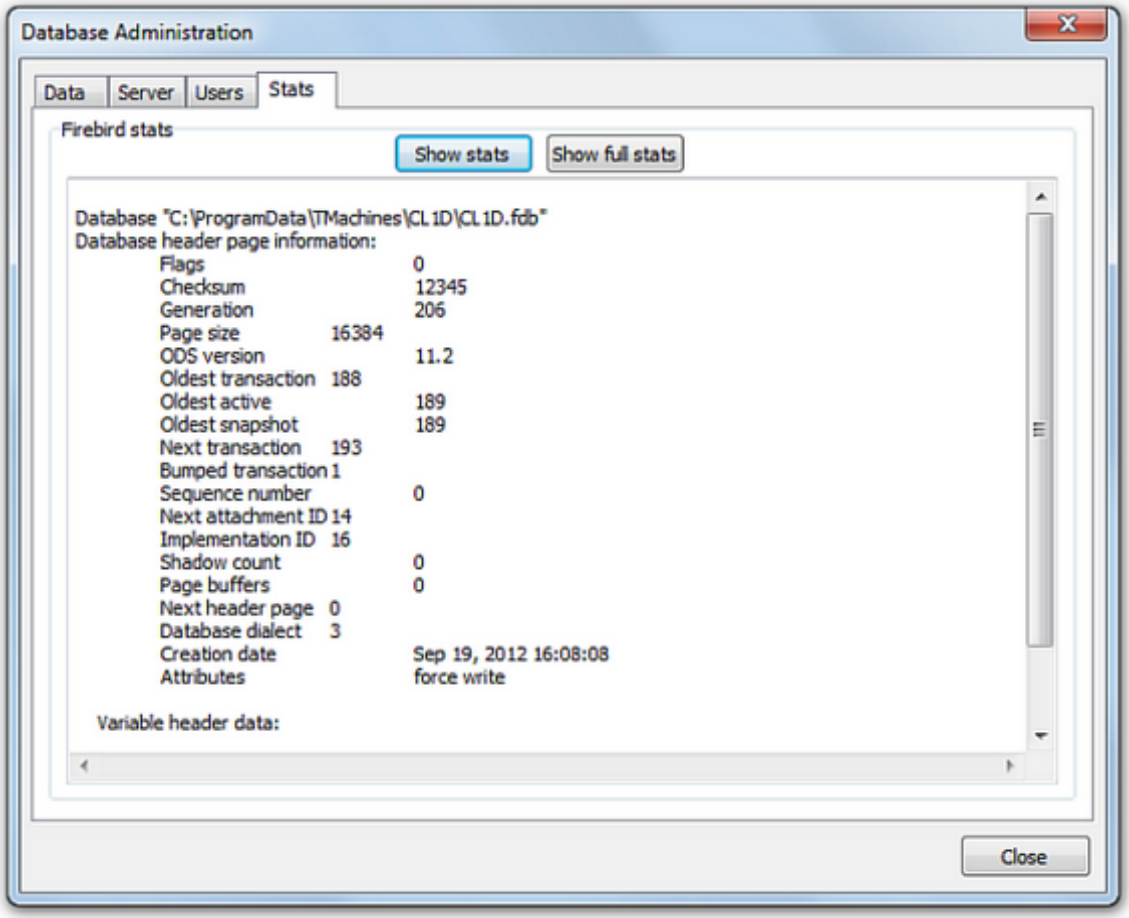


Fill in the user name and the password, confirm the password and check the Access to CutLogic 1D option and click the [OK] button.

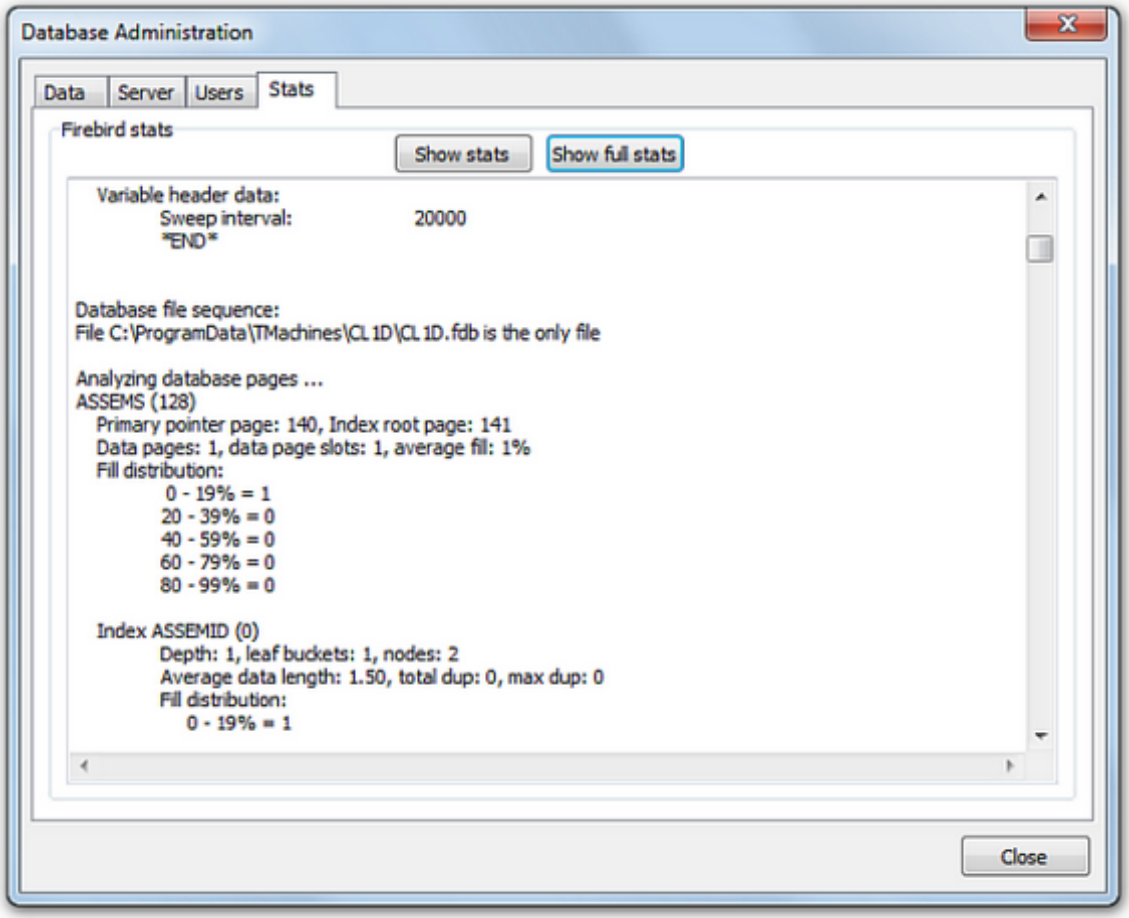
Statistics

The program allows showing Firebird database statistics. This feature can be useful especially for database administrators.

To show the statistics, select the menu item *"Tools > Database > Stats"* and click the [Show stats] button.



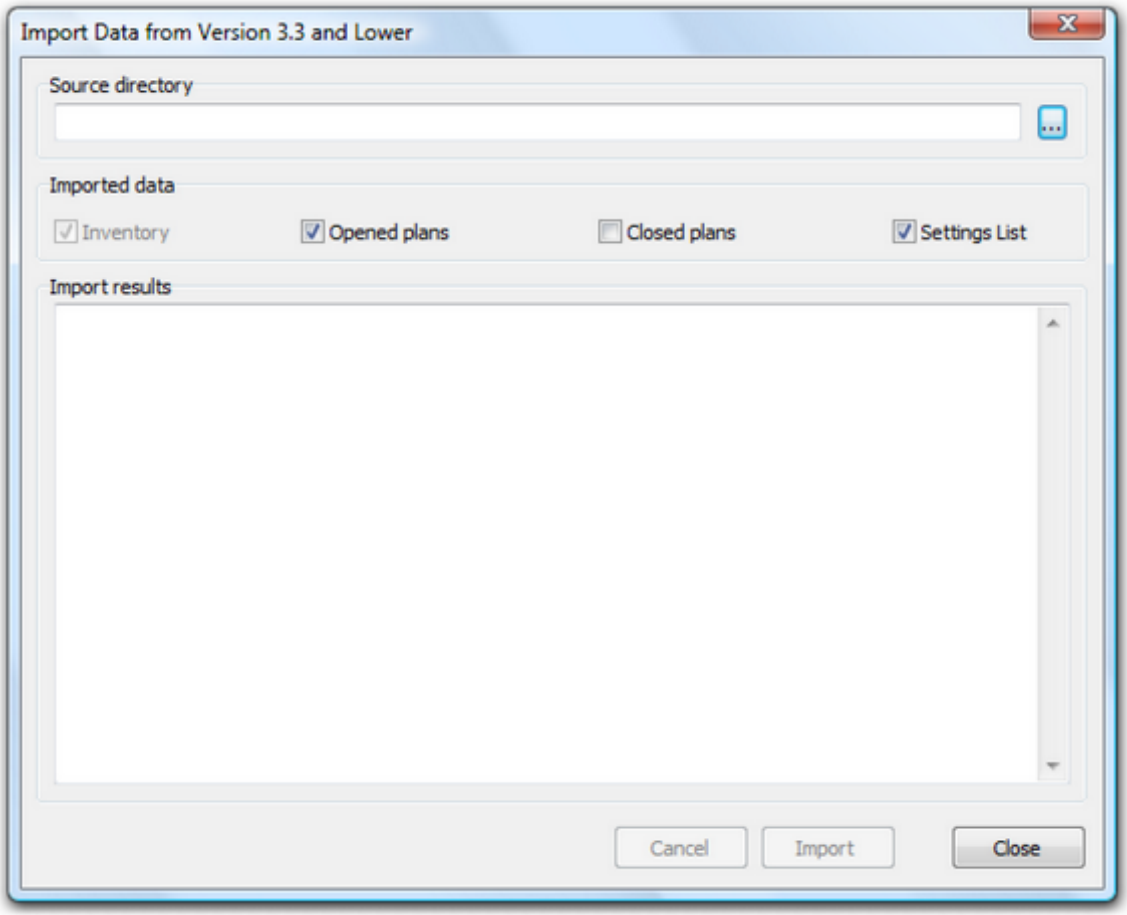
Click the [Show full stats] button to get detailed statistics.



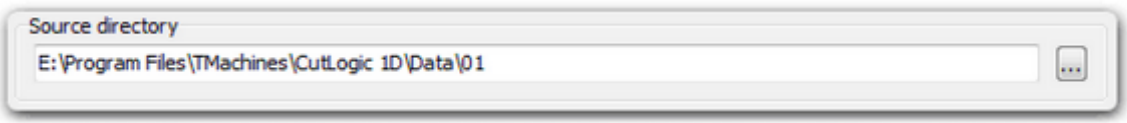
Data Migration from Earlier Versions

Older versions of CutLogic 1D had different database management system (based on dBASE files) than current version of the program. Because of that, when you want to work with earlier entered data in current version of the program, it is necessary to migrate data to new database management system (based on Firebird SQL).

If you want to migrate data from older versions of the CutLogic 1D select the menu item "*Tools > Older versions > Import Data from Version 3.3 and Lower*". Following window, where you can select source destination of imported data and set import options, appears.



Source directory

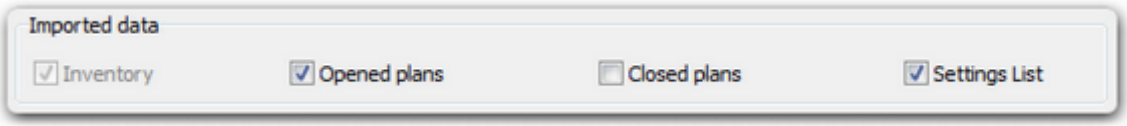


Click the button ... to choose source directory with data of earlier versions (ver. 3.3 or lower) of the CutLogic 1D (e.g. C:\Program Files\TMachines\CutLogic 1D\Data\01).

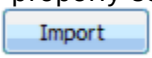
TIP! If your older version of the CutLogic 1D is installed on different computer than the one you have installed new version of the CutLogic 1D, and these computers are not connected via network, you can copy and transfer only data directory "01". After that you can use this as your source directory.

NOTE! Make sure that you have selected directory "01" and not "00" where only empty database files created after installation of older version of the CutLogic 1D are stored.

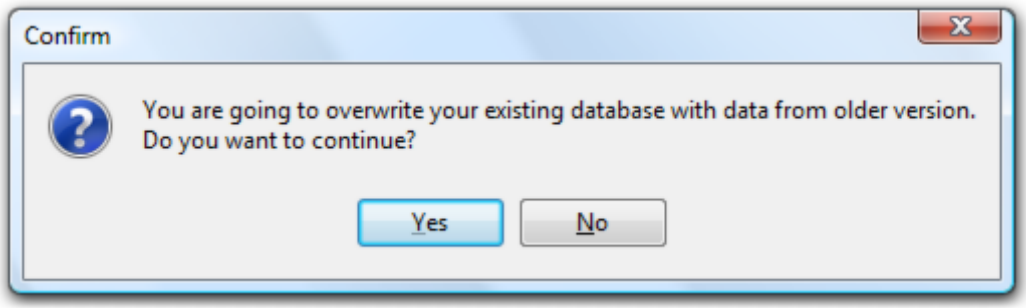
Imported data

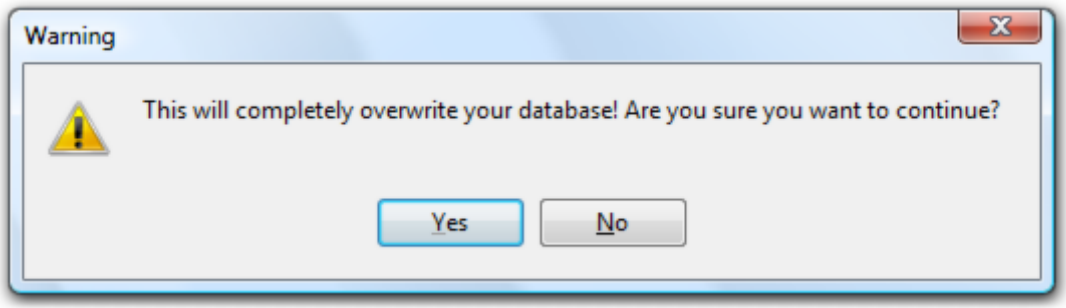


Inventory	Inventory (defined storages, materials, material sources and material parts) is always imported and it is not possible to uncheck this option.
Opened plans	Check, if you want opened plans to be imported.
Closed plans	Check, if you want closed plans to be imported.
Settings List	Check, if you want settings list to be imported.

If you have properly selected source directory and chosen data you want to import, click the button 

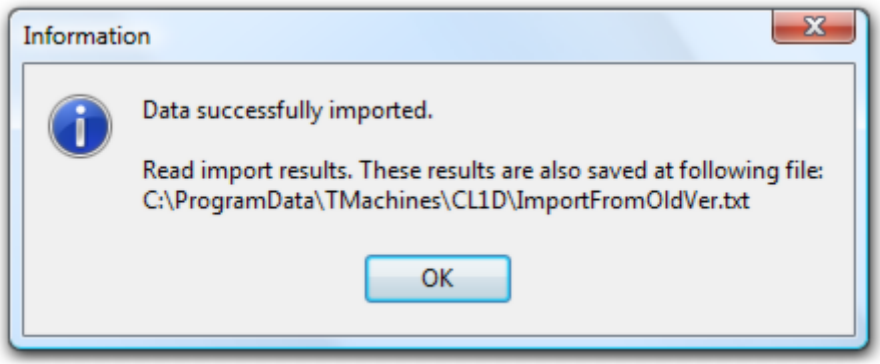
, to start migration of data from older version. Because the migration of data is very sensitive function, which will completely overwrite all current data, following confirmation and warning dialogs appear.



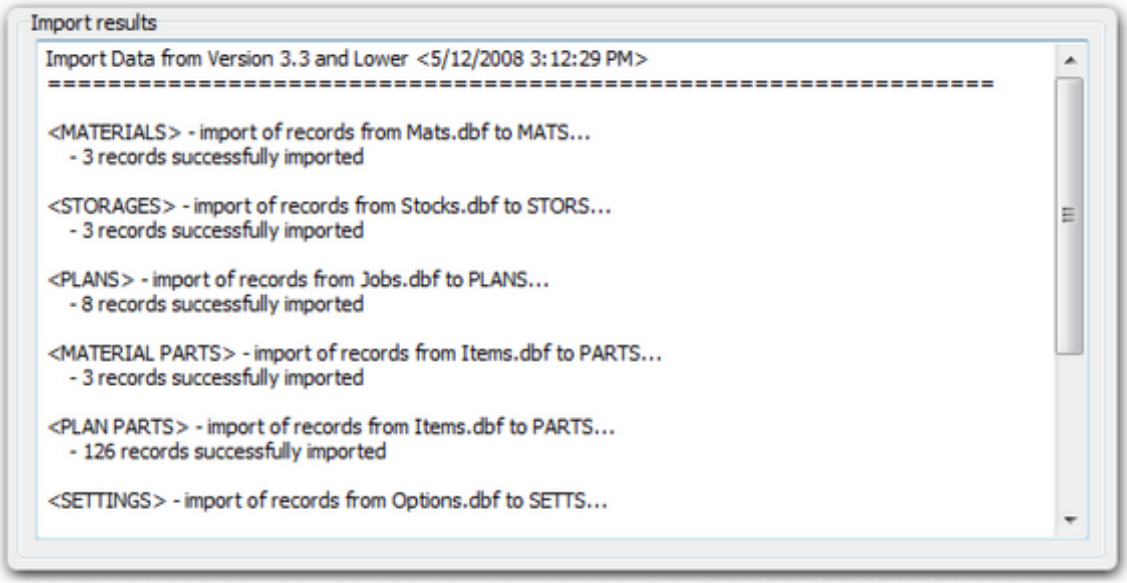


After your agreement with both questions, the migration process starts. During the migration process, progress bar informs you about actual processed data and remaining time.

When the migration finishes and all the data is successfully imported, following information dialog appears.



Import results



Here you can see results of importing process. These results are also saved at ImportFromOldVer.txt file (e.g. C:\Program Files\TMachines\CL1D\ ImportFromOldVer.txt).

WARNING! Migration process is non-returnable operation and all older data will be overwritten with new imported data!

NOTE! Because of large data structure differences in new and older versions of the CutLogic 1D, it is impossible to import any already optimized cutting layouts and these have to be canceled. Plans with canceled cutting layouts should be re-optimized in new version of CutLogic 1D.

Network Installation

First: Install Firebird and CutLogic 1D database file on the server

On the server computer:

1. Install Firebird SQL server (use default settings, don't change anything, just click [Next] buttons). Make sure that no firewall or anti-virus programs block Firebird to listen to client requests.
2. Copy or restore database file CL1D.fdb to chosen folder, e.g. C:\ABC\CL1D.fdb.

   To obtain CL1D.fdb, install CutLogic 1D on one of the station computers, then you will find CL1D.fdb on station at:

   on Windows 7: C:\ProgramData\TMachines\CL1D\CL1D.fdb
   on XP: C:\Documents and Settings\All Users\Application Data\TMachines\ CL1D\CL1D.fdb
3. In Firebird folder, open file aliases.conf and add to it line:
   TMachines.CL1D = C:\ABC\ CL1D.fdb

   on Linux e.g.
   TMachines.CL1D = /opt/databases/CL1D.fdb

   Make sure you have full write access right, and that file aliases.conf was really modified.
4. Write down computer name. It can be either computer name (e.g. JOECOMP), or IP address (e.g. 195.79.203.134). Further we will refer to it as to ServerName.

Second: Install CutLogic 1D on each station

On each station computer:

1. Install CutLogic 1D.
2. Run CutLogic 1D, go to *"Tools > Database > Server"*, and enter ServerName.

Third: Define users

1. Choose one station computer (any) and run CutLogic 1D, log in under username "SYSDBA" and password "masterkey".
2. Go to *"Tools > Database > Users"* and define users - their user names and passwords.

Fourth: Security

It is recommended to change SYSDBA's password from publicly known "masterkey" to your own one. To do it, run CutLogic 1D, log in under username "SYSDBA" and password "masterkey", and go to *"Tools > Database Users"*.

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